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SOME NUTRITIONAL PROBLEMS OF CHILDHOOD*

BY

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It is within the discretion of the Trustees of the Dawson Williams Prize to ask the recipient to deliver a lecture on the subject of his researches, and since this is the first occasion on which they have exercised that discretion, it is surely fitting that I should pay homage to the memory of Sir Dawson Williams.

Dawson Williams achieved outstanding success in two spheres of medicine: first, as a paediatrician; and, secondly, as a medical editor. He edited the *British Medical Journal* for thirty years and won for it a position in the forefront of medical literature, and both it and the *Archives of Disease in Childhood*, of which he was one of the sponsors, are abiding memorials to his name. He was a great man physically and intellectually, and withal somewhat of an autocrat, as all who knew him will bear witness. The last sentence he ever wrote for publication was, "Its motto might be 'Thorough,'" and such certainly was his own motto. When he retired from the editorship of the *Journal* it was felt that his work should be commemorated by some form of testimonial, and he, true to his first love, wished that this should take the shape of a scholarship or prize for research in paediatrics. Unfortunately, before the testimonial could take form he died, and later the Dawson Williams prize in paediatrics, open to the British Empire, was founded in his memory. It is to this man that I pay in this lecture an inadequate but sincere tribute.

I wish also to express my thanks for the great honour conferred upon me by the award of this prize; an honour which gives me the greater pleasure in that I follow in the footsteps of my two distinguished teachers, Dr. F. J. Poynton and Sir Frederic Still.

In looking back over my work I find it difficult to choose a comprehensive title for the problems investigated, but since the majority have been associated with some disturbance of nutrition the title "Some Nutritional Problems of Childhood" will cover what I wish to say. I propose to use coeliac disease as a text, because the investigation of that condition has led to a consideration of many other deficiency disorders of childhood. In a paper of this nature it is obviously difficult to keep out "I." In some places "We" has been substituted, and in others the name of a colleague, because I have been assisted by an enthusiastic band of workers who have combined first-class executive and clinical ability with a high degree of critical and constructive reasoning. My thanks are also due to the Medical Research Council for the generous help which they extended to me for many years.

Beginning my study of coeliac disease with the assumption that deficient absorption of fat was the key to its symptomatology, I now realize that its diverse symptoms are due to impaired absorption of many factors in the diet which are necessary for normal nutrition. At different times the subjects of coeliac disease show symptoms of all the well-known deficiency diseases, as, for instance, rickets, tetany, cataract, scurvy, night blindness, pyodermia, xerophthalmia, atrophic tongue, beriberi, microcytic and macrocytic anaemia, dental hypoplasia, stunting of growth—manifestations which Minot has called "conditioned deficiency diseases."

Coeliac Rickets

Diets severely restricted in their fat content have been used in the treatment of coeliac disease for many years, and although I observed the occurrence of rickets in coeliac disease in 1913, I did not connect its appearance with the diet until it was forcibly brought home to me ten years later by the following case:

In 1919 a girl aged 5 years was found to have coeliac disease and was given a fat-free diet with considerable benefit, but in 1921 she experienced the first of several attacks of tetany, and in 1922 developed knock-knee, which increased so rapidly that a year later walking became impossible. These symptoms were regarded as due to rickets, a diagnosis that was confirmed by radiographs. I was thus placed in the extraordinary position of having, by my treatment, improved one but produced another even more crippling disease; furthermore, if the treatment were continued, it seemed impossible to cure the rickets. Fortunately at this time ultra-violet irradiation was beginning to be widely used in the treatment of rickets; therefore in March, 1925, this form of treatment was started, and nine months later the child who had been bedridden for three years was once more able to walk.

Since then we have successfully treated coeliac rickets by other methods—for example, irradiated cholesterol dissolved in paraffin, irradiated cholesterol in powder form, irradiated ergosterol and calciferol in tablet form dissolved in as little fat as possible and usually given in large doses. We have found that by employing such treatment as a routine in coeliac disease both tetany and rickets can be prevented; otherwise rickets is apt to occur at the growing periods and when the dietetic treatment of coeliac disease has produced a resumption of

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growth, for, although osteoporosis may be present, rickets cannot develop unless the child is growing.

An observation made on one of these early cases of coeliac rickets is interesting in connexion with more recent investigations. This observation was the ineffectiveness of sunlight in the Birmingham area to cure rickets. The child to whom I refer was, when first seen, so black from exposure to the summer sun that he looked like an Ethiopian, yet there was clinical and radiological evidence of the most extreme and severe rickets without the slightest sign of healing. The inadequacy of Birmingham sunshine has been demonstrated by a series of experiments in which three groups of rats were given a rickets-producing diet for a period of four weeks: one group was kept in the dark; another exposed daily from 11 a.m. to 1 p.m. (Greenwich mean time) to the open sky, but not the direct sunshine; and the third group exposed for the same time to whatever direct sunshine was available. Brown and Tisdall found that when rachitic rats were thus exposed to direct sunshine healing should become obvious when the sun is about 35 degrees above the horizon, which, in Birmingham, occurs for about twenty-eight weeks in the year. In the first year the rats were exposed in the centre of Birmingham. In spite of the fact that the summer was hot and sunny, healing only occurred in the "sunshine" rats over a period of seventeen weeks and in the "skyshine" rats for a period of nine weeks. It was thought that this limitation in the healing powers of the sunshine and skyshine was due to the considerable smoke pall which hangs over Birmingham, and therefore in the following year we exposed a series of rats in the country on the north-east side of Birmingham about ten miles from the centre of the city, and another series in the centre of the city, and were amazed to find that healing in Birmingham was better than in the country. Therefore, during a third summer three series of rats were exposed; one in the country to the south-west and some seven miles from the centre of the city; one in Birmingham itself; and one in the same situation on the north-east side of Birmingham as in the last experiment. The results showed that healing was slightly better on the south side than in Birmingham and considerably better in Birmingham than in the country on the north-east side of the city. The explanation of these facts is, we believe, that the prevailing south-west winds carry the smoke from Birmingham and the surrounding Black Country to the north-east of Birmingham and that this cuts off much of the curative ultra-violet rays. The child to whom I have referred had been an in-patient at a country hospital situated ten miles to the east of the city centre, and subject to the same smoke drift.

Some deficiency symptoms appear more commonly than others in coeliac disease: for instance, rickets and tetany occur more often than xerophthalmia, scurvy, and beriberi; again, microcytic anaemia is the commonest deficiency symptom, whereas megalocytic anaemia is one of the rarest. The explanation of these vagaries cannot be the inability of the coeliac child to absorb fat, because xerophthalmia is rare, and scurvy and beriberi occur, but it may be that the "threshold level" required for their development is lower with some deficiency symptoms than with others.

Anaemia in Coeliac Disease

Hypochromic microcytic anaemia occurs so often as to constitute a characteristic symptom of coeliac disease. It is an iron-deficiency anaemia, and essentially similar to Witts's anaemia of adults, since hypochlorhydria is also a common finding. In a few cases megalocytic hyperchromic anaemia has been found; in one case this was apparently due to the absence of intrinsic factor, in others to the lack of absorption of the haematinic factor, since improvement occurred when the diarrhoeal period was over. This type of anaemia can be cured by giving liver extract orally or parenterally.

In investigating the anaemias of coeliac disease, my colleague, Dr. Smallwood, discovered in three children a condition of microcytosis without anaemia, the cell count being normal and the cells deeply stained. This he thought was probably due to spherocytosis, the cells being thicker and more globular than normal, as in acholuric jaundice. In view of more recent clinical and experimental investigations, however, I would suggest another explanation. During the cure of nutritional anaemia a condition known as Hagen's phenomenon sometimes occurs in which the red cell count rises to six millions or more per c.mm. before the haemoglobin reaches normal figures, but when the haemoglobin does become normal the red cells fall to the normal number. Recently Dr. Cleland has found that sometimes, after the progressive diminution in the red cells which is known to occur in early infancy, the cells increase to more than the normal number, while the haemoglobin still continues to fall—that is, the reverse of Hagen's phenomenon. In our opinion both this and Hagen's phenomenon are manifestations of a mild degree of iron-deficiency anaemia.

We believe that the first change in an iron-deficiency state is an increase in the number of cells but a decrease in their size without any alteration in the percentage of haemoglobin, probably because the available haemoglobin is used to better advantage if a small cell is well filled than if a large cell is relatively less well filled (Smallwood). I think, therefore, that the condition found by Smallwood was a manifestation of this early iron-deficiency anaemia. The experimental evidence on which my explanation is based was obtained by feeding rats on a diet which, although deficient in iron, is not so deficient as to produce a definite nutritional anaemia. Rats fed on such a diet from weaning at the age of 3 weeks until 3 months old showed practically normal growth and did not appear pale or anaemic. Their haemoglobin was 100 per cent., but the red cells showed an increase of about two million cells per c.mm.; moreover, the red cells were smaller than normal. This combination of microcytosis, polycythaemia, and normal haemoglobin can be cured by adding iron and a trace of copper to the diet, thus proving that it is a response to a deficiency of iron.

Carbohydrate and Fat Metabolism in Coeliac Disease

A few years ago we repeated and confirmed the observation of several workers that oral glucose-tolerance tests in coeliac disease gave a flat and low blood-sugar curve. Moreover, we were struck by the similarity of these curves to the low blood-fat curves which we had found in coeliac disease after test meals of fat, and since there was considerable evidence that the latter were due to impaired absorption of fat from the intestine, we concluded that the low blood-sugar curves were also due to poor absorption, and not to an endocrine defect as suggested by other workers.

Defective fat absorption in coeliac disease has been repeatedly demonstrated by balance experiments, but this method cannot be applied to carbohydrates because bacterial fermentation in the intestine splits up carbohydrate, so that the amount unabsorbed cannot be estimated by faecal analysis. Our theory therefore could not be substantiated directly, but my colleague, Wallace Ross,

suggested that the problem might be solved by the comparison of intravenous and oral glucose-tolerance tests. He accordingly began work on those lines, and the results obtained have completely confirmed our view that carbohydrate is badly absorbed in coeliac disease, and have led to valuable advances in treatment. The suggestion that glucose tolerance should be estimated by the intravenous injection of glucose is not an original one, but in the test as devised by Ross the following points are new: the glucose (20 per cent.) is dissolved in normal saline, the amount of glucose being 5 grammes up to a weight of 10 kg., 10 grammes up to 30 kg., 20 grammes for older children; the maximum injection time is two minutes; the blood sugar is estimated directly after injection and at short intervals thereafter—namely, 2, 4, 6, 8, 10, 15, 20, 30, 40, 60 minutes—from an ear-lobe puncture, using only 0.02 c.mm. of blood.

There are certain other important points about the test: first, the child should be, as far as possible, on a normal diet from three to five days before the test; secondly, the test should be done after a night's fasting; thirdly, everything should be done to keep the child free from emotional disturbance, which itself affects the blood sugar. The diet is important because it is now recognized that the glucose tolerance of a healthy individual is directly proportional to, and solely dependent upon, the amount of carbohydrate the diet contains during the few days preceding the test. In the normal individual a low carbohydrate diet leads to impaired glucose tolerance, which is shown by a high and rather slowly falling blood-sugar curve, whether glucose is administered intravenously or orally; whereas a high carbohydrate diet will lead to the opposite effect—an increased glucose tolerance giving a low blood-sugar curve.

According to Thaysen a flat oral curve is one in which the rise from the fasting level is less than 40 mg. per 100 c.cm.; even more important, however, is the absence or great delay in the occurrence of a true peak and the failure of the curve to fall to the fasting level in two and a half hours even after a small rise. The form of an oral curve depends upon two factors: first, the rate at which sugar enters the blood—and this may be impaired as the result of gastric stasis or through failure of absorption; secondly, the rate of its removal from the blood—that is, the tolerance of the individual. In impaired absorption less sugar enters the blood, thus tending to produce a low curve; but because of this carbohydrate deprivation glucose tolerance is impaired, and this tends to produce a high curve. The resultant curve depends, therefore, on the degree and duration of the absorptive disability. A mild degree of impaired absorption, although leading to impaired tolerance, probably allows a considerable part of the test dose to enter and thus produce a high curve; whereas although as absorption gets worse the tolerance does also, the test dose cannot get in to show it. Actually during the early stages of coeliac disease the oral curve rises and then, as the disease develops, falls to the flat curve. This phenomenon was observed in a child whose symptoms when she first came under observation were failure to gain weight and listlessness, at which time a fairly high curve was obtained, whereas six weeks later, when the diagnosis of coeliac disease was obvious, a flat curve was obtained. During recovery exactly the reverse of this process has been found—namely, the replacement of flat curves by curves rising to a higher level, often with a delayed peak—these curves falling later to the normal level. It is not surprising, therefore, that some cases of coeliac disease and abdominal tuberculosis have shown almost normal oral curves, although the intravenous curves revealed pronounced impairment of tolerance. It is just such variations in absorption which have enabled Ross to make out a strong case for his view that the correct estimation of glucose tolerance can only be made by intravenous blood-sugar curves, since they are concerned with a single factor—the removal of glucose from the blood.

These results, and the fact that in established coeliac disease the combination of low oral and high intravenous curves has always been found, furnish important evidence in favour of our thesis that the absorption of glucose from the bowel is impaired in coeliac disease. Furthermore, if our assumption were really true it would follow that the glucose tolerance and general condition of these children should be improved by the administration of glucose. This in fact has proved to be the case, and I have seen the most remarkable success follow this treatment in the severest exacerbations of coeliac disease.

The problem of carbohydrate absorption has been attacked in another way. It is known that glucose tolerance is directly proportional to the sensitivity to injected insulin; therefore, the fall in blood sugar when estimated every five minutes for half an hour after cystalline insulin is injected intravenously into a fasting person—the so-called insulin depression curve—is less in a normal individual on a low carbohydrate diet than when the individual is on a normal diet. If there is impaired carbohydrate absorption in children suffering from coeliac disease they should therefore show an insulin depression curve similar to that found in a normal individual on a low carbohydrate diet, and this is exactly what they do show.

"Insulin Kinase"

The third phase of these investigations was based upon the assumption that insulin, whether produced in the body or injected, is inert until acted upon by a "kinase," formed, chiefly in the liver, in response to the stimulus of an elevated blood-sugar level. If this assumption is true, kinase would be deficient—either as the result of lack of stimulus consequent upon a low carbohydrate intake, such as we have postulated in coeliac disease and in diets deficient in carbohydrate, or because the liver, possibly as the result of disease, is unable to respond to the stimulus and produce kinase. Attempts were therefore made to see if the glucose tolerance and sensitivity to insulin of children suffering from coeliac disease could be improved by giving liver preparations intravenously or orally. The same results were achieved by both methods, although more rapidly with campolon than with liver by mouth—namely, that the intravenous tolerance curves became normal, an effect which was not due to campolon itself having an insulin-like action. It was therefore clear that the poor absorption of carbohydrate in coeliac disease resulted in a diminished production of something, perhaps "insulin kinase," which is supplied by campolon or liver extract. Campolon was chosen by Ross because it is prepared by simple expression methods, and therefore is more likely than the more purified products to contain the kinase; actually a more purified and concentrated preparation—anahaemin—was found to have little effect on the glucose tolerance, indicating that insulin kinase is not identical with the haematinic factor. Another interesting fact is that although the intravenous curves are rendered normal by treatment with liver, and there is ample clinical evidence of improvement in the general condition of the children, the oral glucose-tolerance curves do not improve. The reason for this improvement cannot therefore be an immediate increase in carbohydrate absorption, but,

according to Ross, it may be due to better utilization of the carbohydrate formed in the body from protein. In view of these findings we now give liver extract as a routine in coeliac disease, and have been convinced of its value, although the results obtained are in no sense dramatic, like those obtained in severe relapses by the intravenous administration of glucose.

It is interesting to note that Minot and his colleagues regard sprue as primarily a deficiency disease closely allied to pernicious anaemia, and believe that in both there is involved a failure of a reaction between an extrinsic factor in the diet and an intrinsic factor present in the gastric juice of a normal person. Moreover, they class coeliac disease and idiopathic steatorrhoea with sprue, and state that those substances in liver extracts which are effective in pernicious anaemia have a highly beneficial effect on the major features of sprue. Recently, Barker and Rhoads have investigated blood-fat curves in sprue after a fat test meal and obtained results similar to those found by us in coeliac disease, but they also found that after the parenteral administration of liver extract the curves approached normal. In one patient a single injection sufficed to produce this change, but in two other cases several daily injections were required—a result which they say suggests that liver extract exerts some specific effect in converting malabsorbing intestines to normal function. Liver treatment does not produce this dramatic effect in coeliac disease, and low blood-fat curves may be found after months of liver treatment. Again, although carbohydrate absorption gradually improves as the child approaches normal health, it does not, as I have shown, improve immediately after, or even in a relatively short time after, the institution of liver treatment; moreover, the factor in liver which improves glucose tolerance in coeliac disease is not the haematinic factor. Coeliac disease is therefore not a conditioned deficiency caused by lack of specific reaction between extrinsic and intrinsic factors, although the megalocytic anaemia of coeliac disease can be cured by the parenteral administration of haematinic factor; furthermore, the results of the American observers, if confirmed, seem to differentiate sprue from coeliac disease.

I have followed Ross in postulating the existence of an insulin kinase produced chiefly in the liver. The theory that insulin requires an activator insulin kinase is due to Himsworth, but, unfortunately, with the help of McNair Scott he has recently proceeded to strangle the infant to which he had given birth. They now suggest that the reduction in carbohydrate tolerance and decreased insulin sensitivity produced by a low carbohydrate diet are better explained by an increased secretion of the anti-insulin substance of the anterior pituitary—that is, by an inhibitor rather than by an activator such as insulin kinase. It is, however, as pointed out in an annotation in the *Lancet*, possible that both inhibitor and activator may exist and that the anterior pituitary extract may act by inhibiting the production of insulin kinase. If an activator of some variety is not present in liver it seems impossible to explain the results which I have described, because Ross has quite convinced me of the accuracy of his observations.

Phosphorylation

There is, however, another interesting and possible explanation of the undoubted improvement brought about by liver extract in coeliac disease. According to Verzár, fat, glucose, galactose, and vitamin B_2 (lactoflavin) are absorbed from the intestine by phosphorylation, a process which, together with dephosphorylation, constitutes a mechanism for the transport of phosphoric acid from one compound to another. By this process fatty acids are synthesized to phospholipoids and neutral fat in the intestinal mucosa, glucose to a hexose phosphoric acid, and vitamin B_2 to lactoflavin phosphoric acid. Furthermore, the "yellow respiration ferment" of Warburg, which is a combination of lactoflavin phosphoric acid with a specific protein, is probably necessary for phosphorylation to be carried out, and is also the form in which lactoflavin is chiefly absorbed and stored in the liver. If, therefore, phosphorylation does not take place the absorption of fat, glucose, and lactoflavin is greatly impaired, although a certain amount of glucose may be slowly absorbed by diffusion. Verzár maintains that phosphorylation is regulated by adrenal cortical hormone because it does not take place in adrenalectomized animals. Phosphorylation may also be prevented by the administration of monoiodoacetic acid, and young rats chronically poisoned by this acid become stunted in growth and show impaired absorption of fat and glucose from the intestine, a condition which Verzár regards as experimental coeliac disease. He found that this disease in rats could be cured "as effectively as in man" by the administration of yeast or liver, because these substances contain lactoflavin phosphoric acid, and he also found that injection of adrenal cortical hormone into adrenalectomized animals rendered their fat absorption normal. He therefore believes that coeliac disease may result from adrenal cortical insufficiency, and that the administration of liver extract, yeast, or adrenal cortical hormone will cure the condition by rendering fat, glucose, and vitamin B_2 absorption normal.

Now, all our patients suffering from coeliac disease are given liver and marmite (crude yeast extract) as a routine; therefore, if Verzár's theory is accurate and coeliac disease is due entirely to failure of phosphorylation, cure should be as rapid and absorption should be rendered normal as quickly as described by the American workers when patients suffering from sprue are treated with liver. Unfortunately, as I have already stated, our experience in coeliac disease has been that whereas clinical improvement undoubtedly does occur following liver treatment, there is no immediate and dramatic improvement in absorption of fat and glucose; that, moreover, absorption only approaches the normal after months of treatment; and that indeed, even after such a lapse of time, oral blood fat and sugar curves may still be low and flat.

I can therefore sum up by saying that all our work on coeliac disease supports the theory that the symptoms of the disease are the result of defective absorption from the bowel.

Carbohydrate Metabolism in Other Diseases

Observations on carbohydrate metabolism have also been made in many conditions other than coeliac disease; indeed, abdominal tuberculosis has already been referred to. I mentioned a short time ago that, accepting the formation of insulin kinase in the liver, impaired glucose tolerance might be expected to be found in cases of liver disease. This has been observed to be the case in catarrhal and chronic jaundice, cirrhosis of the liver, etc.

The suggestion has been made by J. H. Sheldon that anorexia nervosa is a "functional Simmonds disease—a pituitary black-out of psychological origin," but Ross, in a recent paper, maintained that it could be explained on the ground of starvation. Thus, if for psychological reasons there was a brief abstinence from food, an impaired glucose tolerance would be produced, and this

would lead to a high slowly falling alimentary hyperglycaemia. Now it is known that hunger pains are brought about by injecting insulin and that these are accompanied by gastric contractions of the normal type and an increase of hunger; therefore, hyperglycaemia should lead to failure of hunger and loss of gastric tone. The administration of liver, by improving sugar tolerance, should produce a fall in blood sugar and stimulate appetite, and if, after the appetite is stimulated, a high carbohydrate diet is given, improvement should occur. Treatment on these lines was carried out with great success in a child aged 12, weighing 40 lb. After seven weeks she increased in weight to 67 lb., and her intravenous glucose-tolerance test became normal. We have also used liver extract or campolon for restoring appetite and increasing weight in wasted infants and children. The results have been most encouraging, and almost as dramatic as in the case of anorexia nervosa which I have just described.

Conclusion

There are many other deficiencies of nutrition in coeliac disease, which time does not permit me to deal with, but I thought that an account of the work on liver and carbohydrate metabolism which was inspired by a study of coeliac disease, and of its applications in the treatment of nutritional states, might prove interesting.

A SYSTEM OF RADIUM DOSAGE

BY

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It will be generally admitted that success in the treatment of malignant growths by radium depends upon accuracy of dosage, and that this again depends upon two factors. In the first place the radium must be so arranged that every portion of the region under treatment receives an equal amount of radiation. In the second place the total amount of radium and the time for which this is employed must be such that the total radiation received at each point is adequate for the destruction of the cells forming the tumour.

It is usual and convenient to define the total radiation received in *r* units, and in general it is found that a radiation of from 6,000 to 7,000 *r* is sufficient to destroy the cells of a squamous carcinoma. A milligramme of radium screened by 0.5 mm. of platinum may be taken to deliver at a distance of one centimetre a radiation of 8.4 *r* units per hour. For many reasons it is convenient to make the standard time of treatment 133 hours, or about five and a half days. In this case our one milligramme of radium will have delivered 1,120 *r* units at a distance of one centimetre. Moreover, there will have been evolved and discharged just 1 millicurie of emanation, so that we can describe our source as 133 mg.-hours, or as 1 millicurie destroyed, whichever is the more convenient. We assume throughout a screenage of 0.5 mm. of platinum. Our calculations are greatly simplified if we accept five and a half days as the standard time of treatment when radium element is employed, as then the number of milligrammes of radium and the number of millicuries destroyed are represented by the same figure. To this fundamental figure, which represents the total energy delivered by our combined sources, we shall apply the term "Index."

The problem before us is so to distribute our sources and to adjust the amount of radium they contain that every portion of the region treated receives a radiation of at least 6,000 *r*. In general this means the use of complicated charts and most intricate calculations. To avoid this I propose to suggest certain simple rules by which we can reach an approximately accurate solution, setting up certain standard distributions which can be modified to meet the requirements of any special case.

Simple Rules for Calculating Dosage

The two methods of radium treatment in most general use are by plaques and by insertion. Plaques may be constructed of any size in wax or other material on which the radium is supported, and they are generally applied externally. We have, however, recently employed small plaques made of dental wax and inserted temporarily into the tissues. One advantage of a plaque is that the radium can be distributed upon it in an exact manner, so that we can know with great accuracy the effect which will be produced.

In order that this effect should be as uniform as possible over the region of application, the radium must be distributed in a certain manner, and it can be shown that remarkably flat and uniform fields of irradiation are obtained if one-half of the radium is distributed uniformly over the surface of the plaque and one-half around its circumference. Moreover, with this arrangement the intensity falls off roughly as the distance from the plaque, and not as its square.

Assuming such an arrangement, how are the amount of radium required and the time of exposure related to the size of the plaque, or, in other words, what is the Index of the plaque? For circular plaques we suggest the very simple rule that the Index is the diameter of the plaque in millimetres. Plaques so constructed and employed give over a large range almost identical depth doses—that is to say, they form appliances of similar power for the treatment of tumours of different dimensions. Their exact characters will be clear from the accompanying table, from which it will be seen that they form convenient standards requiring only slight modification to meet special circumstances. In most cases plaques are built up by mounting needles or seeds directly on a model of wax or other plastic material, when it will be seen that the rules we have laid down form a very useful guide. Even where the plaque is not circular we have a sufficiently accurate approximation if we take its average diameter as a basis for calculation. Where, however, it is bent upon itself, as, for example, in treating a carcinoma of the alveolar margin or the lip, allowance must obviously be made for the effect of cross-fire.

Table for Calculating Depth Dose

Diameter (Centimetres)	Index	Depth from Active Surface of Plaque in Centimetres					
		0.5	1	2	3	4	5
3	30	24	13.9	6	3.1	1.9	1.3
4	40	21	13.4	6.7	3.8	2.3	1.6
5	50	19	12.8	7	4.2	2.7	1.9
6	60	17.2	12	7	4.5	3	2.1
7	70	15.7	11.2	7	4.6	3.2	2.3
8	80	14.5	10.5	6.7	4.6	3.3	2.5
9	90	13.5	10	6.6	4.6	3.4	2.6
10	100	12.5	9.4	6.4	4.7	3.5	2.7

Depth dose in units of 1,000 *r* for standard plaques.

Turning now to the methods of insertion, it often happens that what we are really constructing is an inserted plaque, when the above rules still apply. This is the case, for example, in the treatment of carcinoma of the breast, where in effect a plaque is formed on the chest wall, or in the treatment of some cases of secondary glands in the neck. In other cases, however, where we are dealing with a localized tumour it is better to regard the problem from a different aspect.

Suppose that we require to treat a spherical mass of growth and that it is possible to distribute our radium both around it and throughout its substance, how should it be distributed and how much should we employ? Again two very simple rules can be formulated. As regards the distribution, arrange one-quarter of the radium uniformly through the growth, and three-quarters just outside its palpable limits—that is to say, just beyond the growing edge. In this way it can be shown that every point of the growth received a nearly equal dose. As regards amount, the number of milligrammes required for a treatment extending over five and a half days or, what is numerically the same, the number of millicuries destroyed—that is to say, the Index—is given by the square of the diameter of the growth in centimetres.

This simple rule depends upon the physical fact that in the case of a sphere such a distribution gives a very uniform irradiation throughout, and at its centre a total irradiation of exactly 6,720 *r* units, whatever the diameter of the sphere may be. For clinical purposes where a tumour is only roughly spherical we obtain a sufficiently accurate result by taking its average diameter.

Comment

It is not, of course, suggested that the rules we have laid down form an infallible guide to radium dosage, or that they can in any way replace experience or the exact calculations of the expert. It is, however, felt that they form standards which even the expert may use as a starting-point, and which he can readily modify to meet any special requirements. The conception of the Index certainly simplifies calculation, and in effect reduces all our problems to a single scale.

The 1938–9 programme of the West London Medico-Chirurgical Society opened on October 7 with the presidential address by Dr. Maurice Shaw on heredity and medicine. Other meetings have been arranged as follows: Friday, November 4, 8.30 p.m., clinico-pathological meeting at West London Hospital. Friday, December 2, 7.45 p.m., at De Vere Hotel, Kensington, W., Discussion: "Illegal Operations." To be opened by Mr. Cecil Binney, Dr. C. P. Blacker, Mr. Aleck W. Bourne, and Dr. W. J. O'Donovan. Friday, January 13, 7.45 p.m., at De Vere Hotel, Discussion: "Some Aspects of Medical Folklore." To be opened by Dr. J. D. Rolleston. Friday, February 3, 8.30 p.m., clinico-pathological meeting at West London Hospital. Friday, March 3, 7.45 p.m., at De Vere Hotel, Discussion: "Pre- and Post-operative Treatment." To be opened by Dr. E. H. Hudson, Mr. Cecil Joll, and Mr. A. Simpson-Smith. Friday, April 14, 7.45 p.m., at De Vere Hotel, Discussion: "Sex Glands in General Practice." To be opened by Professor E. C. Dodds and Dr. L. P. E. Laurent. Friday, May 5, 7.45 p.m., at De Vere Hotel, Discussion: "Some Recent Advances in Medicine." To be opened by Professor Henry Cohen. The Cavendish Lecture will be delivered at Kensington Town Hall on Wednesday, June 7, at 8.30 p.m., and the annual dinner will be held at the Trocadero Restaurant on Wednesday, July 5, at 7.45 p.m.

THE ANTI-PERNICIOUS PRINCIPLE: SOME EXPERIMENTS WITH URINE

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(From the University Medical Clinic, Lausanne, by permission of Professor L. Michaud)

We have no proof that the anti-pernicious principle circulates in the blood, although some authors explain in this manner the partial efficacy of blood transfusions in pernicious anaemia. Its presence in organs other than the liver cannot be deduced from the experiments of Whipple and Robscheit-Robbins (1925), which established that the haematopoietic power of the kidneys, for example, is equal to that of the liver, that of the brain one-third as great, etc. The experiments of Whipple were based upon the rate of blood regeneration in dogs exsanguinated by successive haemorrhages, and in no way prove the presence of *anti-pernicious* principle in the organs concerned. It remained for Minot and Murphy to apply clinically the discoveries of Whipple and to show that pernicious anaemia was peculiarly responsive to the action of liver. Furthermore, since the introduction of therapeutic extracts (Cohn, McMeekin, and Minot, 1930) of increasing purity it has become possible to distinguish the specific action due to anti-pernicious principle from that which causes blood regeneration in non-pernicious anaemia and is due to other haematopoietic substances (Farrar and Sturgis, 1936; de Jong, 1938).

The presence of an anti-pernicious principle has, however, been demonstrated in the kidneys (McCann, 1928), the lungs (Hitzenberger, 1934), the brain, salivary glands, and pancreas (Dakin, Ungley, and West, 1936), and the saliva (Tempka, 1936). This substance, as emphasized by Wakerlin (1937), cannot be precisely identified with that of the liver, since the methods employed in preparing active extracts of liver are ineffective when applied to other organs.

Briefly, although we are in the realms of hypothesis, it would not appear unlikely that the anti-pernicious principle, widely diffused throughout the body and present in the kidneys, should be eliminated, like so many hormones, in the urine. In 1935 Wakerlin reported favourable results from the treatment of pernicious anaemia by intramuscular injections of a concentrated extract of normal urine, while Decastello (1935) obtained similar results with urine administered both by injection and per rectum. Wakerlin, however, in a more recent work (1936), based upon a greater number of cases, was unable to confirm his previous results.

The confirmation of such a fact as the presence of an active anti-pernicious principle in normal urine would not only possess a considerable theoretical interest—in establishing that the metabolism of the principle is not confined to the alimentary tract and liver—but would have a practical application in suggesting the elaboration of a method of biological diagnosis of pernicious anaemia based upon the absence of anti-pernicious principle from the urine. It is for this reason that the experiments to be described were attempted.

Choice of Method

The fact that pernicious anaemia does not occur in animals greatly limits our means, since animal experiments do not enable us to distinguish between a simple haematopoietic action and a specific anti-pernicious action. Such experiments have been far from valueless, since it was by their means that Whipple succeeded in demonstrating the therapeutic properties of liver; yet the interpretation of their results may lead to errors which can only be avoided by clinical control. Within certain limits, however, they may be employed to supplement the scarcity of cases of pernicious anaemia suitable for subjection to long and complicated investigations. (The difficulties of purely clinical experimentation explain the somewhat slow progress which has attended the study of everything touching upon the anti-pernicious principle.) Various methods have been used for such experiments, all of which consist in observing the action of the substance under investigation either upon anaemia or upon the reticulocyte content of the blood of certain animals: space forbids their enumeration here.

The method chosen in the present instance was that depending upon reticulocyte reaction in the white rat. Introduced by Singer (1932), it has been employed by numerous others (Fleischhacker and Schlesinger, 1935; Kamerling, 1935; Baráth and Fülöp, 1935; Leiner, 1935; Fejgin and Plonskier, 1936; Crosetti, Bajardi, and Margulius, 1937; Levi, 1937; Mark and Hauke, 1937); and, with certain differences of technique as previously described by one of us (Jéquier, 1936), has been in use for the past three years at the Lausanne medical clinic. Its details will not be recapitulated here.

The following table shows the results obtained with normal urines.

No. of Tests	Test Material	Result		
		Positive	Negative	Doubtful
10	Normal urine, untreated ..	7	1	2
10	Normal urine, concentrated* ..	10	–	–
10	Normal urine, heated† ..	10	–	–

* Concentrated to half its volume by evaporation *in vacuo* at laboratory temperature, as the animals appeared insufficiently sensitive to small quantities of urine.

† Heated to boiling point for ten minutes to destroy the thermolabile fraction of the anti-pernicious principle.

Owing to the comparative rarity with which untreated cases of pernicious anaemia are now seen at the clinic it was possible to obtain for experimental purposes only four such cases. All four presented a complete clinical picture with the characteristic triad—typical blood picture, disorder of the alimentary tract (glossitis, gastric anacidity, tendency to anorexia and diarrhoea, etc.), and disorder of the nervous system; the latter was especially marked in one case which showed typical pseudo-tabes.

The haematological abnormalities were studied not only in the peripheral blood, which revealed intense hyperchromic anaemia with leucopenia and thrombopenia, but also in the bone marrow obtained by sternal puncture. The latter showed inhibition of cellular maturation with predominance of young forms, of which the greater number were megaloblasts as described by Naegeli (1936). In all four cases the blood state was restored to normal by the administration of liver extract.

In each case, before the inception of treatment, a subcutaneous injection of 3 to 5 c.cm. of urine which had been concentrated to half its volume provoked a positive reticulocyte reaction in the white rat. The details of these reactions, together with those of reactions obtained with one specimen of normal urine, are set forth in the following table.

Table showing Details of Reactions following Injection of Urine in White Rats

Urine	Number of Reticulocytes per 1,000 Red Cells						
	Before Injection		After Injection				
	Day 1	Day 2	Day 1	Day 2	Day 3	Day 4	Day 5
Normal	11	9	12	27	30		
„ concentrated ..	15	18	16	35	19		
„ heated	18	11	14	16	14	39	
Pernicious anaemia (Mme W. H.) ..	16	23		22	30	38	25
„ „ ..	11	10		25	39	14	13
Pernicious anaemia (Mme S.) ..	6	7		31	40		
„ „ ..	10	9		36	45		
Pernicious anaemia (Mme P.) ..	7	5		11	31	29	
„ „ ..	11	13		10	29	35	
Pernicious anaemia (Mme P. A.) ..	5	8		11	28	40	
„ „ ..	14	16		12	41	30	

Conclusions from the Above Experiments

The urine of untreated cases of pernicious anaemia contains, like normal urine, a substance capable of provoking a reticulocyte reaction in the white rat. It may be assumed that this substance is not the anti-pernicious principle of liver, the presence of which could hardly be conceived in such cases; its existence nevertheless precludes the utilization of the present method as a means of demonstrating the absence of that principle. The results obtained are in contradiction to those of Leiner (1935), who found that untreated cases gave a negative reaction which became positive after specific treatment was instituted.

Although it appears that the positive reactions reported above were due to a substance other than the anti-pernicious principle, the possibility remains that the urine of healthy persons may contain this principle. The proof of such a hypothesis would be at least of interest with regard to the metabolism of the principle, and for this reason the clinical investigation now to be described was made.

Clinical Experiment

This experiment was carried out upon one of the four patients previously mentioned (Mme W. H.).

A daily blood count showed a constant level of between 10 and 15 reticulocytes per 1,000 red cells; there was thus no tendency to spontaneous amelioration. The haemoglobin was 58 per cent., the red cells 1,820,000, and white cells 4,000 per c.mm.

From January 24 to 28, 1938, the patient received, after going to stool, a drop-by-drop rectal infusion of 300 to 500 c.cm. of normal urine, specific gravity above 1020, filtered through paper, coloured with Congo red (one drop per 100 c.cm.) and warmed to body temperature. (Decastello in his experiments decolorized and deodorized the urine by filtration through animal charcoal. As this procedure lowers the specific gravity of the fluid to a considerable degree, it was feared that the principle under investigation might be retained by the filter, and filtration through charcoal was therefore omitted.) The first two infusions were well tolerated, but the ensuing ones provoked colic and diarrhoea. It is therefore probable that the urine was not completely absorbed by the intestine. The addition of tincture of opium did not prevent these manifestations.

A daily estimation of the blood urea did not show any elevation during the experimental period. The reticulocyte count remained between 10 and 16 per 1,000 throughout the ten days following the first infusion. On the last day the haemoglobin was 44 per cent., the red cells numbered 1,450,000, and the white cells 2,800. There was no subjective amelioration, such as can often be observed under liver therapy before any change occurs in the blood picture.

Interpretation

According to Minot and Murphy (1927), if ten days elapse without the appearance of a reticulocyte reaction it can be concluded that the substance given is inactive.

There was no question of a state of aplastic anaemia, since the subsequent injection of liver extract provoked a clear reticulocytosis, rising from 31 per 1,000 on the fourth day to 180 per 1,000 on the seventh, with steady improvement of the anaemia until at the end of two months the patient left the clinic with 87 per cent. haemoglobin, 4,000,000 red cells, and a practically normal blood picture.

The doses of urine given in this case were not less than those employed by Decastello. In fact, the latter obtained reticulocyte reactions with daily infusions of 50 to 150 c.cm. (total dosage, 2,000 c.cm.) and clinical and haematological improvement with larger doses—300 to 500 c.cm. per day to totals ranging from 3,000 and 4,000 c.cm. up to 26,000 c.cm.

Obviously no definite conclusion can be drawn from this single case, and it is unfortunate that a similar trial could not be carried out on the other cases, either because their condition did not admit of delay in instituting treatment of known value or because they manifested the alimentary troubles characteristic of their malady.

Until more amply informed, we incline to the opinion of Wakerlin, who, after first demonstrating, as he believed, the presence of anti-pernicious principle in the urine, concluded in the light of further experiments that it was in fact absent.

Summary

1. Human urine, in health and in untreated pernicious anaemia, contains a substance capable of producing a reticulocyte reaction in the white rat.

2. Normal urine, in the case of pernicious anaemia described, showed no therapeutic activity.

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THE EARLY DIAGNOSIS OF SCHIZOPHRENIA

BY

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The recent application of new methods of treatment in schizophrenia (by hypoglycaemia and convulsions) has brought into the foreground the necessity for early diagnosis. Whatever their opinion of the absolute value of these new methods, all workers are agreed that the best results are obtained in early cases.

Many views are held as to the nature of schizophrenia. Some regard it as a distinct disease-entity, others as probably embracing a number of different morbid conditions, still others prefer to look on it as a preformed type of reaction shown at a certain level of cerebral disintegration. However that may be, up to now it can be diagnosed only by psychological means. This may change at any time. Biochemistry may provide us with a specific reaction for the whole or some of the cases we call schizophrenic; so may the study of the brain-waves, or any other method. There is perhaps some hope that even the modern therapeutic experiments may enable us to arrive at a physical method of diagnosis. But at present we still have to do without a "Wassermann" of schizophrenia.

Signs and Symptoms

In psychological medicine we cannot proceed, as in general medicine, by collecting signs and symptoms and fitting them into a sort of jig-saw puzzle. All the symptoms have to be related to the psychological background against which they appear. All the circumstances, even though they appear to be side issues, have to be taken into account, and the symptoms have to be evaluated in relation to the personality of the patient, his upbringing and education, and his present environment. Especial difficulty arises in cases with an insidious onset, slight but definite indications of which are often discovered in schizophrenics preceding the appearance of an acute illness.

The characteristic symptoms may be little marked or may be disguised by secondary features that are really the patient's reaction to morbid changes which may be as yet imperceptible. These insidious and slowly progressing cases are often mistaken for neuroses. It is important that they should not escape the attention of the physician, and that they should not be subjected to a prolonged and useless psychotherapy.

Three-quarters of the cases begin between the ages of 15 and 25. Slight depression, a tendency to oppose the older generation, and hypochondriacal concern about the bodily changes in later puberty are to some extent natural at the earlier age. But if these events are exaggerated and prolonged this may be a first premonitory sign. A well-educated, intellectually precocious youth changes from one profession to another, and seems quite unable to find his vocation in spite of all possible facilities and help provided by his relatives. A shy and seclusive girl exhibits an uninfluencible stubbornness in her behaviour towards her friends, gradually losing all contact with her family, and becomes a member of a revolutionary sect or group in which also she is regarded as strange. Others go from doctor to doctor with vague complaints of fatigue and rapid exhaustion under comparatively slight stress, insomnia,

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general nervousness, etc. They look pale, have a greasy skin and sluggish vasomotor response; otherwise no bodily illness can be found. Or the patient may come to the physician complaining of sexual anomalies, in themselves perhaps usual enough in puberty, but described in a cool objective manner devoid of normal bashfulness or concern. Or prolonged shyness or sexual indifference may give place to an exorbitant self-indulgence, regardless of convention or social standards.

If the disease starts later, ideas of jealousy, well founded or not, may be a first premonitory sign, and are usually reported by the partner. Relatives complain to the doctor of a husband's ruthlessness to his wife and children and his lack of interest in his business. Neighbours find a previously gentle and sociable lady becoming suspicious, quarrelsome, and inaccessible to reasonable argument; she becomes slovenly and avoids any contact until the neglect of her children provokes the attention of the authorities.

This catalogue could easily be extended. But though one's suspicion may be aroused by the recital of such histories, the attention should be directed to more specific symptoms.

As elsewhere in medicine, the significant and diagnostically important symptoms in schizophrenia are not the most impressive ones. The order in which they are given here is that of their diagnostic importance.

I. Thought Disorder

Bleuler regarded the loosening and breakdown of normal processes of association as the fundamental disturbance in schizophrenia, and therefore invented that name. Thinking is not disturbed because it starts from wrong suppositions which lead it astray; this would be the description of a certain type of delusional ideas. In schizophrenic thought disorder the single contents may be correct in themselves, but they are put together in a muddled and scattered manner. "There is an abundance of what one might term 'the knight's move' in association" (Mapother). Therefore, the result of thinking if uttered or written down often sounds like a silly joke, although not meant as such.

To give a few examples. A patient wrote in a letter to the hall porter of a hospital from which the former was absent on week-end leave: "If I should return during my absence, keep me here until I come back." Fragment of an interview between patient and physician: (In what way do you feel ill?) "You know the story of Adam and Eve? How Eve was tempted with an apple?" (What about your illness?) "All the people in the ward eat apples." (That is not unusual!) "In the ward the door is open and the window closed." (Yes, I think that is so.) "Nobody will be able to get to the apple-tree. . . . We are all ruled by electricity, all except my dog," etc. A schizophrenic patient mentions Napoleon and goes on to say that he was banished to Ellis Island. "That's where they psycho-analyse people" (W. L. Woods).

If the disturbance is so striking it is easy to recognize. In the beginning of the illness it may be very slight and only demonstrable under certain circumstances—for example, if one asks the patient to repeat a story or to explain a proverb or the point in a fable. The disorder may even only be a subjective symptom to which the patients react with uncharacteristic complaints. They speak of inability to concentrate, or complain that their ideas are diffuse or narrowed. But often the disorder is not regarded as an incapacity by the patient; on the contrary, he brings forward his vague nonsense as something quite natural, and feels himself not understood by the persons of his environment. Simple things are expressed in a queer stilted language, and are uttered in the tone of mystical revelations. A student turns from science to what he calls philosophy. Uneducated people think themselves able to reform human life and solve the deepest problems.

It is sometimes not easy to differentiate this behaviour from the transitional intellectual inconsistencies of the adolescent age. Thought disorder in confusional states (due to intoxications or other severe cerebral impairment) is often of very similar incoherent kind. But in confusional states there is always a dimming or clouding of consciousness, which is clear and unimpaired in schizophrenia. In cases in which the state of consciousness cannot be ascertained the history and the somatic findings mostly make clear the nature of the disorder.

II. Disturbances of Volition

Symptoms which can be classified under this heading are easily overlooked, and are often only disclosed by direct questioning of the patient. Then he will say that he does not feel master of his will, his thoughts, or his activities; he is influenced by other people who make him think or do things; his ideas, words, or movements are not his own, he feels hypnotized, drugged, etc. These disturbances of volition, if expressed straightforwardly, are pathognomonic of schizophrenia. But there is often only a slackening of will-power, which may not be realized by the patient himself. This can be one of the first signs: the patient becomes unable to make any decision in the various things of daily life, as well as in important questions like marriage or choice of a profession. Well-educated intelligent men become idlers or vagrants without any detectable cause. As in most other schizophrenic symptoms, the striking change in the patient's behaviour compared with his former habits is important here.

It is sometimes impossible to distinguish psychologically the loss of volition in commencing schizophrenia from weakening of spontaneity in a neurasthenic or in a patient with organic deterioration. Circumstances and concomitant symptoms usually make differentiation possible. Moreover, slackening of will is not often the only volitional disturbance in schizophrenics. It occurs together with spells of unexpected hyperactivity, of absurd impulses, and with specific schizophrenic anomalies known by the terms "negativism" (morbid contrariness without any motivation) and "ambivalence" (presence of opposite tendencies, between which no decision is made).

Signs of this kind, if present, also permit the distinction of volitional weakness in schizophrenia from retardation in depressive states. This differential diagnosis can be difficult, especially if the depressive affect is not very pronounced. The affective anomalies characteristic of schizophrenia will, however, be of help here.

III. Inadequacy and Incongruity of Affect

The normal emotions of affection and sympathy for the patient's nearest relations or friends cool off or take on a quality of shallowness during a commencing illness. More primitive emotional reactions—for example, of fear or rage—are preserved longer. Some patients notice and complain of this loss of all warmth of affection: a similar complaint is often made by depressives, who do, however, in the very moment of making the complaint, show a normal affective response. In many schizophrenics their cool and uncouth behaviour is only remarked by their relatives: the patients deny it, or find nothing strange in their tactless or flippant manners.

It is due to the loss of affective response of the early schizophrenic that the physician is often unable to establish a natural rapport with his patient, in spite of efforts to do so. This test, if cautiously applied, can serve as a valuable diagnostic aid—for example, in cases in which early schizophrenia is disguised in the form of a neurosis.

The difficulty is that many persons of a schizophrenic diathesis show an inadequate affective response all their lives. In such people the onset of the psychosis may be signalized by gross anomalies of emotional reaction—for example, fatuousness, an out-of-place hilarity, or (of great practical and medico-legal importance) an unfeeling cruelty. Murder and similar crimes are often attempted and committed by unrecognized schizophrenics. The percentage of schizophrenics in institutions for criminal lunatics is much higher than that in the average mental hospital.

Incongruous affect—that is, an emotional response inappropriate to the circumstances—is more commonly seen in later stages of the illness. It needs skilled psychological observation to detect it in an early schizophrenic: it is a sign of great diagnostic value.

IV. Autochthonous Delusions

This symptom ranks first in respect of diagnostic significance among the *positive* symptoms of schizophrenia. It is the fundamental event from which are developed all paranoid schizophrenic states, and is especially noteworthy as the primary experience underlying ideas of reference and other delusions. As it is often cloaked in a secondary elaboration and in features derived from the personality and the environment, a few examples of its pure form may facilitate its recognition.

A patient said: "I went into a café, and there were three white tables; I looked at them, and suddenly I knew that this signified the end of the world." Again, "The clock was at eight; I knew from this that I had to devote myself to religion from now on." "There were red and white suits in the shop-window; this meant that I am of a different descent."

What is characteristic of these occurrences is that out of a casual and commonplace perception a morbid conviction has arisen. This conviction may have a definite content or meaning, or it may be quite vague and indefinite, "something terrible," "something extremely important," etc. It produces, or is perhaps produced by, a peculiar delusional attitude: one might say that the patient is submerged in an atmosphere of misinterpretation. It is unimportant from the diagnostic point of view whether the patient keeps to these delusional ideas or abandons them later on. The building up of a delusional system and the addition of explanation and justification are much less characteristic of schizophrenia than the original autochthonous experience, which in typical cases takes place out of a blue sky. It may be possible by industrious research to discover a connexion between the content of the delusion and previous experience, but this is of little significance. What is important is the readiness to plunge into a mystic conviction, which is beyond all reasoning with. The physician's natural efforts to understand the patient may obstruct his recognition of the morbid character of the delusional experience.

V. Catatonic Symptoms

These anomalies of motor behaviour were regarded as diagnostically specific by Kraepelin when he first created the concept of what to-day we call schizophrenia. They have lost part of their significance since their frequent occurrence in so-called organic psychoses, especially in states of clouded consciousness, has been observed. Many catatonic features have been seen in encephalitis lethargica and after focal lesions of a like localization. Excitement and stupor in affective psychoses are sometimes indistinguishable from those in schizophrenia. Stereotypies, fixed attitudes, and mannerisms are easily recognized, but they belong as a rule to later stages of the disease.

In early schizophrenia one often finds a rather characteristic pre-stuporose behaviour, a kind of motor constraint lasting for hours or present all the time. To the layman the patients seem drowsy, but they are really not so; they are only as it were restricted in movement and speech. There is often insomnia, and headache is complained of. Others report states of rigidity, which is forced upon them for a short period at night. These akinetic states, and also periods of aimless restlessness, may be split off from everything else in the patient's mind and deprived of any true motivation. Sometimes the patients do not find anything abnormal in their motor peculiarity. A patient awoke from a stupor which lasted over weeks: when questioned why he did not move or speak, he only answered that he felt too bored.

VI. Hallucinations

These can occur in all types of mental illness. Those characteristic of schizophrenia are significant not so much as hallucinations as by virtue of their combination with the symptoms mentioned before—voices reproducing the patient's thought disorder, containing neologisms; bodily sensations closely related to feelings of passivity or to catatonic movements; synaesthesiae with bizarre delusional contents—behind which the hallucination proper remains indiscernible. All these phenomena are relatively rare in early stages of the disease.

It must be remembered, however, that hallucinations in a state of clear consciousness are very common in schizophrenia, but uncommon in other psychoses. Isolated auditory hallucinations are most frequently met with. Commencing schizophrenics often describe phenomena in which they are unable to make a clear distinction between vivid thinking and actual hearing.

The attitude of patients towards their hallucinations is characteristic. Although they can distinguish between the false perception and a real one, they have no insight. Further, though convinced of the reality of their experiences, they may not draw the obvious conclusions or react in an unexpected way. For instance, a man who thought he was perpetually being molested by means of the telephone and the wireless took his complaints not to the Post Office or to the B.B.C., but to a psychiatrist.

Occurrence of Symptoms

Although all the schizophrenic symptoms mentioned in this survey may be found in one patient at the same time or in the course of his illness, many cases show a preference for one or for a small group of these symptoms and never exhibit the others. Thus, some patients develop shallowness of affect and thought disorder, but never have delusions or hallucinations. Some "catatonics" become only stuporose, without any psychological content; they may have a few hallucinations and autochthonous delusions in the introductory stage. There are "paranoids" or "paraphrenics" without demonstrable thought disorder and without disturbances of volition. In other cases the volitional anomalies may entirely predominate in the clinical picture. There is not one among

the main symptoms which cannot be absent in a case of schizophrenia provided the others, or some of the others, are present.

In view of this multiform symptomatology, numerous efforts have been made to establish one of the symptoms as the fundamental disturbance of schizophrenia. Although in each of these theories a certain core of truth is contained, none of them covers the facts with a satisfactory completeness.

General Qualities

There are, however, a few general and structural qualities of the schizophrenic picture which are of diagnostic value. The relative *clearness of consciousness* has been mentioned before. It can be present in states of severe motor excitement, in full-blown hallucinosis, and in deep stupor. The hallucinating schizophrenic who seems completely absorbed in his delusional world, but at the same time notes every detail in his real environment, is the classic example of this psychological picture which has been named "double orientation." It is perhaps not by pure chance that states of disturbance of consciousness like continuous sleep, hypoglycaemic coma, or epileptic fits seem to have some therapeutic effect on schizophrenia.

The *tendency to "splitting"*—that is, a non-systematic psychic disconnexion, from which the name of the illness was taken—is another structural character evident in most cases. Fragmentation may separate ideas from accompanying emotions, mimic expression from proper affect, and speaking from thinking, but also a complex of delusional ideas may be separated from the rest of the personality and emerge only on certain occasions.

It has been said that many schizophrenic symptoms have a quality of peculiar *psychological remoteness from normality*. They are so far from normal understanding that they cannot be described in ordinary language. One cannot imagine what is going on in the patient as one can, to some extent, in all other psychoses. Thus, the reaction of the non-schizophrenic to the schizophrenic can be used as a diagnostic test. At the same time—and this is diagnostically much more significant—the patient himself finds his absurdities not at all strange, but quite natural, rational, and understandable.

As a final general character the *detachment from reality* (Bleuler's "Autismus") has to be mentioned. It often appears as an active withdrawal of the patient from anything that may disturb his delusional world. In later stages of the illness, if favoured by supporting circumstances, it produces a grotesque mental isolation of the patients. In the beginning a detached superiority of the patient to everything that really matters to him may provide the keystone of the diagnosis.

B. Albrigo (*Rif. med.*, 1938, **54**, 1297) records two personal cases of aberrant vaccinia. The first was that of a woman, aged 25, vaccinated in infancy only and the subject of eczema of the vulva, who developed extensive vaccinia of the external genitals, perineum, and anal region. Infection in this case was probably due to her having scratched the eczematous lesions after attending to her recently vaccinated child. Subsequent vaccination on the arm had a negative result. The second case was that of a man, aged 38, who had been vaccinated in infancy and again at 18 years of age and was the subject of peri-anal eczema. The vaccinial nature of the peri-anal lesions in his case was shown by the production of a typical vaccinial keratitis after inoculation of the cornea of a rabbit.

INCIDENCE OF PATHOGENIC STAPHYLOCOCCI IN THE NOSE

BY

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It has been suggested that a factor in the chronicity of some cases of furunculosis and osteomyelitis is the transference of pathogenic staphylococci by the patient's fingers from the nose to the skin or wound. Dolman (1935) found that staphylococci were present in the nose of nine patients with nasal sinusitis and also in the apparently healthy nose of several patients with staphylococcal infections elsewhere. Valentine (1936) obtained cultures of *Staphylococcus aureus* from the healthy nose of fourteen of eighteen cases of chronic furunculosis. In six out of seven of these strains the toxin production (α-haemolysin and Panton-Valentine leucocidin) was comparable to that of the strain isolated from the lesion elsewhere. Apart from the possibility of reinfection of a superficial lesion it is conceivable that pathogenic staphylococci in the nose may sometimes gain access to the blood stream and give rise to an acute osteomyelitis or a perinephric abscess. Thus it is of interest to gain an idea of the incidence of pathogenic staphylococci in the nose of individuals who are free from staphylococcal infection.

Individuals Studied and Methods Employed

During February and March, 1938, nasal swabs were taken from 101 undergraduates aged 18 to 22, thirty-three children in hospital aged 7 months to 16 years, and thirty-one adults in hospital aged 19 to 75 years. None of these had or had recently had a staphylococcal or nasopharyngeal infection.

The nostrils were swabbed through the anterior nares with sterile cotton-wool swabs mounted on a probe. Since the work of Thomson and Hewlett (1895) it has been agreed that, in a healthy nose, cultures from the walls of the nasal cavities proper yield relatively few organisms, while the vestibule, the vibrissae, and crusts of dried secretion yield a plentiful and varied growth (Küster, 1929; Cruickshank and Cruickshank, 1931). From the point of view of a possible source of infection of the patient's fingers it is the vestibule which might be important, so that it is no disadvantage in this investigation that the majority of the organisms obtained on the swabs came from that source.

A swab from each nostril was smeared directly on half an agar plate. The plates were incubated at 37° C. for twenty-four hours. Films were made of suspicious colonies, and when staphylococci were found two or three representative colonies were subcultured into a broth tube. When both *aureus* and *albus* were present colonies of each were examined. The broth cultures were incubated at 37° C. in an atmosphere of 30 per cent. carbon dioxide for forty-eight hours. After centrifugation the supernatant fluid was tested for α-haemolysin by diluting 0.1 c.cm. with 0.4 c.cm. saline, adding 0.5 c.cm. of a 2 per cent. suspension of thrice-washed rabbit red cells and incubating at 37° C. for an hour. A control tube containing 1 unit of antitoxin was set up for each fluid. In a few cases where haemolysis occurred in the control tube, proof that the α-haemolysin was responsible was obtained by showing that the antitoxin neutralized

a greater dilution of the fluid. A loopful of the sedimented cocci was inoculated into a sterile stoppered tube containing 0.5 c.cm. of a 1 in 5 dilution of human oxalated plasma in saline. The presence or absence of coagulation was noted after three hours' incubation at 37° C. and confirmed after the tubes had stood on the bench overnight. One per cent. mannite peptone water tubes were also inoculated, and were read for acid production after twenty-four hours, and after seven days' incubation.

Strains of Staphylococci

In all, 167 strains of staphylococci were studied, and the results are given in Table I.

TABLE I.—*Properties of Staphylococci Isolated from the Nose*

Strain	No	Haemolysin		Coagulase		Mannite	
		+	−	+	−	+	−
Aureus	59	55	4	51	8	55	4
Albus .. .	108	23	85	23	85	29	79
Haemolysin + ..	78			74	4	74	4
− ..	89			0	89	10	79
Coagulase + ..	74					71	3
.. − ..	93					13	80

There is a high degree of association between *aureus* pigmentation, haemolysin production, coagulase production, and mannite production, which is in accord with the results of others. Four haemolytic strains produced no coagulation though tested on two samples of human plasma and on rabbit plasma on which other strains gave positive results. There is, therefore, not complete correlation of haemolysin production and coagulase activity as recorded by Cowan (1938), but agreement of the order found by Hallman (1937), Saski and Fegjin (1937), Cruickshank (1937), and Fisher (1936). Flaum (1938) records even more divergent results. The discrepancies are possibly due to differences in the plasma used or in the method of toxin production. It is, however, generally agreed that haemolysin-positive coagulase-positive strains are pathogenic. The four haemolysin-positive coagulase-negative strains in this series have been classed as pathogenic. They all occurred in the undergraduate group, and the figures are not greatly affected by their inclusion.

The figures in Table I and Cowan's results suggest that a very high proportion of *aureus* strains are pathogenic and a high but lower proportion of *albus* strains non-pathogenic. The percentage of *aureus* strains in a series can therefore be used, in default of other information, as a rough estimate of the percentage of pathogens.

Incidence of Staphylococci in the Nose of Healthy Persons

The numbers of persons in the various groups found to be carrying staphylococci in the nose are recorded in Table II, with the percentages and their standard errors. As mentioned above, swabs were taken from both the right and the left nostril. In most cases the growth from the two nostrils was similar. In fifteen cases the growth from one side was heavier or contained more *aureus* and less *albus* colonies than the other; but such differences were slight, and the results are given as positive or negative for each individual.

TABLE II.—*The Number of Persons with Staphylococci in the Nose*

Group	No.	Staphylococci Present		Haemolytic Staphylococci	
		No.	% ± S.E.	No.	% ± S.E.
Children in hospital (7 months to 16 years) ..	33	24	72.7 ± 9.1	19	57.5 ± 8.6
Adults in hospital (19 to 75 years)	31	27	87.1 ± 6.5	13	41.9 ± 8.9
Undergraduates (18 to 22 years)	101	91	90.9 ± 3.0	33	34.4 ± 4.7
Total	165	142	86.1 ± 2.9	67	40.6 ± 3.8

The results are similar to those obtained by Hallman (1937). The figures in Table III have been extracted from her paper and the standard errors calculated.

TABLE III.—*The Number of Persons with Staphylococci in the Nose (Hallman, 1937)*

Group	No.	Staphylococci Present		Coagulase + Staphylococci	
		No.	% ± S.E.	No.	% ± S.E.
Children in hospital (2 months to 12 years) ..	272	201	73.9 ± 3.1	159	58.4 ± 3.0
Children in hospital (13 to 19 years)	38	30	70.9 ± 8.3	23	60.5 ± 7.9
Adults in hospital (over 19 years)	49	37	75.5 ± 7.1	22	44.9 ± 7.1
Students	109	87	79.8 ± 4.3	40	36.7 ± 4.7
Total	468	355	76.3 ± 2.3	244	52.1 ± 2.3

The different percentages of carriers of pathogenic staphylococci recorded in the totals are due to the large number of children in Hallman's series. The difference between the carrier rates in Hallman's students and younger children is 21.7 per cent., which is more than thrice its standard error 5.6, and there is a difference of 23.1 per cent. between the undergraduates and children in my series, which is more than twice its standard error 9.8. Thus the differences in carrier rates of these groups are more than are likely to have arisen from sampling errors. Too much stress cannot be laid on the striking similarity of the carrier rates in comparable groups of the two series, since there are differences in the percentage of persons carrying non-pathogenic staphylococci, and neither author found the coagulase and haemolysin tests completely parallel. In both series the carrier rate of non-pathogenic staphylococci is higher as the carrier rate of pathogenic strains is lower. It is safe to conclude that in two samples of healthy and active young adults one of every three was found to be carrying pathogenic staphylococci in the nose. In adults in hospital the carrier rate was higher, but the numbers involved are not sufficient to make the difference certain. In children in hospital three out of five were carriers.

The statement of a carrier rate does not give a measure of the chance that an individual will be a carrier if observed over a period of time. Dudley (1932), during a year's observation of diphtheria carriers in a school, found that, with an average carrier rate of 6.6 per cent., 40 per cent. of the boys were carriers at one time or another. Davis (1921) concluded that cultures taken at short intervals from the throat of normal persons sooner or later revealed the presence of haemolytic streptococci in practically all of them. Hart (1937) noted during nine months' study of the nasal and pharyngeal flora of an operating theatre staff that there were many intermittent carriers of *Staph. aureus* and few persistent ones. The

figures he obtained for the carrier rate (Table IV) are of interest because they show a greater variation among the same community over a period of time than was shown between the various groups of the series recorded above.

TABLE IV.—*Carrier Rates in an Operating Theatre Staff (Hart, 1937)*

Group	Date	No.	Staphylococcus Aureus Present	
			No.	% ± S.E.
Operating theatre staff	Jan. 20	57	35	61.4 ± 6.5
	Jan. 29	44	44	100
	Feb. 7	53	14	26.4 ± 6.1
	Sep. 30	56	9	16.1 ± 4.9
General population	Jan. 23	54	39	70.4 ± 6.2

Bloomfield (1921) found *Staph. aureus* present in the throat only as a transient parasite except when there was a definite local infection. Eight laboratory workers examined by him carried *Staph. albus* constantly in the nose over a period of three months, while *Staph. aureus* was only occasionally present. Personal observations on patients in hospital showed that haemolytic staphylococci were not always isolated from later swabs of the nose of a patient whose first swab had been positive a few weeks before.

These observations and analogies make it evident that there is considerable variation from one community to another and in the same community from time to time in the percentage of persons carrying pathogenic staphylococci in the nose, that in healthy and active undergraduates the carrier rate may be one in three, and that the great majority of healthy individuals are carriers from time to time.

Incidence of Staphylococci in the Nose of Patients with Staphylococcal Infections

Owing to the limitations of available clinical material the incidence of pathogenic staphylococci in the nose of patients with staphylococcal infections has been studied only on small numbers of individuals. The methods used have been the same as for healthy persons, and the figures are given in Table V.

TABLE V.—*The Number of Patients with Staphylococci in the Nose*

Author	Group	No.	Staphylococci Present	Haemolytic Staphylococci	
			No.	No.	% ± S.E.
McFarlan	Osteomyelitis (over 19 years)	10	10	7	70.0 ± 14.5
	Boils and carbuncles (over 19 years)	19	18	13	68.4 ± 10.7
	Total	29	28	20	68.9 ± 8.6
				Coagulase + Staphylococci	
Hallman	Osteomyelitis (19 years or under)	22	20	11	50.0 ± 10.7
	Osteomyelitis (over 19 years)	29	22	13	44.8 ± 9.2
	Total	51	42	24	47.1 ± 7.1

The figures in my series suggest that there is a higher incidence than in persons with no staphylococcal infections, and the difference (27.0% ± 12.4) is more than would often arise from errors of sampling. Yet Hallman's figures do not show a similar difference, and it would be premature to conclude that the incidence is in fact higher. In nine undergraduates who had had a series of boils a year or more before investigation and were then free, there were seven who had haemolytic staphylococci in the nose. This shows that the local condition does not necessarily recur when pathogenic staphylococci are present in the nose. The growths of staphylococci obtained from the nose of some patients with staphylococcal infections were pure *aureus* and more profuse than usual, but similar growths were obtained occasionally from healthy persons.

It is certainly possible that pathogenic staphylococci may be transferred by the patient's fingers from the nose to a lesion elsewhere. The figures recorded here show that pathogenic staphylococci are so often present in an apparently healthy nose that it is reasonable to take all possible precautions to prevent reinfection from that source. Yet the frequency with which pathogenic staphylococci occur in the nose of healthy persons makes it possible that their presence in the nose of patients with staphylococcal infections in other parts of the body is merely a reflection of the carrier rate of the community in which they are living. If the serological types of staphylococci prove to be as stable and numerous as Griffith's streptococcal types it may be possible to obtain evidence in favour of the occurrence of reinfection from the nose by finding that the nasal strain is serologically identical with that isolated from the lesion elsewhere. At present the isolation of pathogenic staphylococci from the nose of a patient with a chronic staphylococcal infection cannot be considered as proof that reinfection is occurring.

Summary

1. Pathogenic staphylococci were isolated from the healthy nose of 34 per cent. of healthy undergraduates, 42 per cent. of adults in hospital, and 58 per cent. of children in hospital. Similar figures for the incidence in individuals with no staphylococcal infection have been obtained by Hallman in a larger series.

2. It is suggested that the great majority of healthy individuals are carriers from time to time.

3. Pathogenic staphylococci were isolated from the healthy nose of 69 per cent. of patients with staphylococcal infections elsewhere.

4. The isolation of pathogenic staphylococci from the healthy nose of a patient with a chronic staphylococcal infection is not in itself proof that reinfection from the nose is responsible for the chronicity of the infection, though the possibility of such reinfection cannot be denied.

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SULPHONAMIDE IN THE TREATMENT OF ACUTE MASTOIDITIS

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We feel diffident in making claims for a preparation which, by reason of its initial success, may have had an inflated popularity, but the results given below seem to be striking enough to warrant publication. The inconclusiveness of first results is well known, and these figures are published in the hope that further investigation and use of the drug by others will lead to its acceptance as a most useful prophylactic during the course of the all-too-common otitis media. The method of administration which has been carried out at the Royal Naval Hospital, Chatham, during the past year has been as follows:

All cases of acute suppurative otitis media (A.S.O.M.) were placed on "colsulanyde" (Crookes's), 1 drachm four-hourly by mouth, *as soon as they were admitted*. In addition they received the treatment of the acute ear which has been accepted practice for generations—namely: myringotomy, if the tympanic membrane was showing evidence of retention of pus, whether perforated or not; syringing of the ear thrice daily with saline or a solution of boric acid, followed by drops, those mostly used being gutt. hydrarg. nit. dil., gutt. acid. boric. in spirit, gutt. glyc. acid. carbol., and where the tympanic membrane was inflamed, intact, but not bulging, "sedonan" or "otalgan"; constant inhalations of tinct. benzoin. co. and menthol, and attention to nasopharyngeal and sinus infection. They also had a smart sulphur-free purge on admission, and a sulphur-free analgesic, such as aspirin.

During the year following the introduction of this routine the ratio of acute mastoiditis to acute otitis media has been greatly reduced, *in this series from 22.7 per cent. to 4.5 per cent.* That the accuracy of these figures is open to question is beyond doubt, for many different factors come into play in assessing results of this kind. The possible causes of error will be discussed later. The figures were obtained from the statistical returns of the hospital, and the average for the years 1934, 1935, 1936, and the early half of 1937, when sulphonamide was not being used, is compared with the year comprising the latter half of 1937 and the early half of 1938, when the above routine was employed. The figures for "acute mastoiditis" are those cases which were actually operated upon, and which were therefore surgically proven.

	A.S.O.M.	Acute Mastoiditis
1934	245	41
1935	177	33
1936	152	58
1937 (first half)	33	6
Total	607	138

Percentage of cases of acute suppurative otitis media to develop acute mastoiditis, 22.7.

	A.S.O.M.	Acute Mastoiditis
1937 (second half)	69	2
1938 (first half)	86	5
Total	155	7

Percentage of cases of acute suppurative otitis media to develop acute mastoiditis (sulphonamide used), 4.5.

Furthermore, during the period January, 1934, to June, 1937, the number of deaths per annum from the complications of acute suppurative otitis media averaged 2.85, while during the period June, 1937, to June, 1938, there were no deaths from this cause.

No claims are made in regard to the efficacy or otherwise of the drug in the treatment of otitis media *per se* (this side of the question is still under investigation), but the figures are consistent with the view that it is a preventive of the complications of this disease. Secondly, it is not claimed that every case of otitis media was streptococcal in origin, for not all of them were swabbed. All those in which swabs were taken proved to be due to a haemolytic streptococcus, and during the past winter and spring there has been, in the district from which these cases came, almost a streptococcal epidemic, comprising tonsillitis, scarlet fever (which has been very severe), etc.

The incidence during the years 1934 to 1937 (first half) may seem to be unduly high. However, the Royal Naval Hospital at Chatham draws its patients largely from establishments where a great number of individuals are massed together, and especially from those training establishments in which a large number of boys of the ages of 16 and 17 are accommodated. In this environment it is possible that an infecting organism may rapidly reach a high state of virulence, passing as it does through a large number of individuals of the age (at the boys' training establishments) when mastoiditis is most common and, in the case of the newly joined, finding an easy and non-resistant prey, often equipped with predisposing conditions such as massive pads of adenoids. The same treatment was adopted for any case of scarlet fever which developed otitis media, and these have been shown among the "A.S.O.M." section. Only one of these patients developed acute mastoiditis.

From the above it will be seen that the sulphonamide was used in a purely "shotgun" manner, and it is contended that the results justify its use, for, even if the otitis does not respond to the treatment and mastoiditis develops, no harm has been done and the patient's resistance is in no way impaired by the drug. In no case was the administration of sulphonamide prolonged for more than fourteen days, as it was considered that by the end of this time any good which would accrue from this mode of treatment had already been done, and, conversely, if the drug had failed, then no good purpose was being served by its continuance.

Chronic otitis media has not been considered in the above group of patients, the vast majority of whom had no previous record of otitis media.

Points Noted during the Series

In a small minority of cases colsulanyde, 1 drachm four-hourly, caused in the course of a few days a noticeable cyanosis, though no subjective symptoms were complained of by the patients. In these cases the sulphonamide was stopped for a few days and then begun again on a dosage of 1 drachm thrice daily. None of them showed any evidence of a true sulphaemoglobinaemia when tested spectroscopically, and Long and Bliss (1937) mention that they were not convinced of the existence of this condition.

A leucocyte count was performed as a routine on admission, and the tendency appeared to be for this count to drop after a few days' treatment, especially in those cases which already had a raised white count on admission, and a slight relative lymphocytosis appeared to be the rule. There was, however, little change in the blood picture relevant to otitis media, and this subject (the changes in the blood picture during sulphonamide treatment) is under investigation by Surgeon Commander McIntyre, to whom we are indebted for his co-operation.

The patients were not placed on a sulphur-free diet, as has been recommended by some, though sulphur-containing drugs were avoided in the concomitant treatment.

Discussion of the Results

It will be at once apparent that the percentages given above for the fall in mastoid incidence are open to question as regards their absolute accuracy. The seasonal and yearly incidence of mastoiditis varies widely and is naturally worse in an epidemic year, but it is claimed that, so far as Chatham is concerned, the last twelve months *have* included an epidemic. This, then, may be taken, if not as an error on the right side, at least to cancel out, more especially as the streptococcus had been active in many parts of the country during the early spring of this year.

Another cause of error which weights the scales in favour of the drug is the tendency of the surgeon, striving to show results such as these, to adopt a more expectant line of treatment of mastoiditis than he has formerly been accustomed to carry out. While the existence of the "doubtful" mastoid is undeniably common, there are a large number of cases which anyone would be forced to diagnose as acute mastoiditis, and even the most expectant treatment would not be able to reduce the mastoid ratio to the extent given above without an increase in the fatalities. Nor was the drug found to produce a "false cure," as Anwyl-Davies (1937) alleges it to do in gonorrhoea, though this side of the question is still under investigation and to be proved conclusively will need figures taken over more than one year.

It is reasonable, too, to assume that sulphonamide would have a beneficial effect on the course of acute streptococcal mastoiditis, because this drug is known now to be specific for the organism. The figures already published, from the original ones of Colebrook and Kenny to the most recent, all show that the virulence of the organism to the human body is reduced; and since in the type of mastoiditis under review the virulence seems to be a big determining factor in the infection or escape of the mastoid process, the results might almost have been forecast, though it is gratifying to see them work out in practice.

What, in our opinion, is of the utmost importance is the early administration of the drug at a time when there is no question of mastoid infection. Probably pus is present in the mastoid antrum in many cases of otitis media, but this is still confined within a layer of mucous membrane. It is asking too much of any non-surgical measure to effect a cure after this membrane has broken down and there is already osteitis of the mastoid process, though Montandon (1937) reports two cases in which sulphonamide was given as a premedication before mastoidectomy and the condition settled without the need for operation.

It seems plausible to imagine that the sulphonamide reduces the streptococcus in the middle ear to a virulence low enough to enable the antrum to shut itself off by granulations (which it undoubtedly does in middle-ear infections of a low virulence), and thus guards against the all-too-common type of case where very acute mastoiditis develops within a few days of the onset of the otitis media. None of the seven cases operated upon during the second half of 1937 and the first half of 1938 were of this type; they were all operated upon because of a persistence of the discharge, coupled with a low pyrexia, slight mastoid tenderness, and a high leucocyte count. Sulphonamide in these cases appeared to have failed; this is a well-known phenomenon, and one for which no explanation is offered. In all cases the mastoid cells were found to be hopelessly involved.

In fact, since the adoption of this line of treatment the classical "acute mastoid" has become a rarity in the hospital.

Conclusions

In spite of the possible sources of error in the figures published above, the incidence of acute mastoiditis in the Royal Naval Hospital, Chatham, has been notably reduced. Since the only difference in the accepted treatment of the acute ear has been the introduction of routine administration of sulphonamide *on admission*, it is reasonable to suppose that the aforementioned drop in mastoiditis is due to the drug. Therefore the sulphonamide group of drugs have a very real place in the treatment of acute suppurative otitis media.

We would like to express our indebtedness to Surgeon Rear-Admiral Dudley for his invaluable assistance in compiling these results.

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Clinical Memoranda

The Use of Prontosil in Sprue

As early as 1914 I recorded two cases of sprue, with prominent soreness of the mouth, in which lasting benefit followed the use of autogenous streptococcal vaccines prepared from cultures from the sore tongue. In 1918 I published seventeen further cases, and suggested that oral streptococcal infection might play a part in the aetiology of sprue, even if it is only a secondary infection. Later in that year Dr. Lucius Nicholls confirmed my observations regarding the beneficial effects of autogenous oral streptococcal vaccines in sprue, and pointed out that his cultures belonged to the non-haemolytic *Streptococcus viridans* type. In 1920 I reported on forty-four cases of sprue treated in Calcutta by the vaccines, in addition to milk diet and drugs for controlling the looseness of the bowels, and compared the results with those in forty-five cases that I had analysed from the earlier Calcutta European Hospital records (Rogers, 1921). In the old series, which were probably more severe on the whole than the vaccine series, there were no recoveries while in hospital, and only five cases had greatly improved. In the vaccine series twenty-one had recovered, eighteen of them remaining well for upwards of one year, and thirteen, mostly more recent cases, had greatly improved. In six other cases relapses occurred. Later I obtained good results with the vaccines in clearing up the symptoms of sore mouth, followed by much gain in weight with cessation of the diarrhoea, in patients treated at the Hospital for Tropical Diseases, London; but it is difficult to assess the relative influence of diet and vaccines respectively.

A recent experience leads me to return to the subject. During the last five years I have from time to time attended for sprue a retired Indian tea-planter living in the country and now over 80 years of age. Since he moved to Southwold I had not seen him, until recently Dr. E. C. Cordeaux reported to me that his condition had become serious, being complicated by a fall of haemoglobin to 48 per cent., and by febrile bronchitis. On August 2, 1938, I saw the

patient with Dr. Cordeaux, but found he was already improving, with decline of the fever and the bronchial symptoms, following prontosil rubrum orally and injections of liver extract. The stools before the treatment numbered up to seven daily, and the use of prontosil was immediately followed by a fall in temperature and a decline of the stools to two or three daily, a result which Dr. Cordeaux had no doubt was due to the new drug. I have since heard that the soreness of the mouth has also greatly declined, and this confirmed the impression I had formed that the prontosil may possibly have exerted a beneficial action on the oral streptococcal infection, the presence of which I had verified by cultures at an earlier date; I had not, however, been able to give more than two or three vaccine injections some two years ago.

Of course, no conclusions can be drawn from improvement, which may be only temporary, in a chronic case of sprue. It is only the improbability of opportunities arising for a reliable test of the prontosil group of drugs in this depressing and intractable disease that prompts me to suggest its cautious trial, in moderated doses and for a limited period.

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Salyrgan in the Reduction of Localized Oedema of Traumatic Origin

The remarkable effect of salyrgan in the reduction of dropsy in medical cases led me to consider the advisability of its use in surgical oedema. [The official preparation, mersalyl, listed in the Addendum to the *British Pharmacopoeia*, is the sodium salt of salicyl-(γ-hydroxymercuri-β-methoxypropyl)amide-O-acetic acid.]

The first case was that of a man with a cut finger and hand which had healed well, but, as often happens, recovery was delayed by some oedema. One intramuscular injection of 1 c.cm. of salyrgan produced a diuresis of about 100 per cent.; there was a considerable and sudden improvement in the movement of the fingers and a great reduction of the swelling. A few days later the injection was repeated, with a further satisfactory result. This case showed that the diuresis produced was accompanied by a diminution of a given localized oedema. The discovery of an adjunct to physiotherapeutic treatment seemed to have been achieved, and, accordingly, the procedure was put to further tests.

OTHER CASES TREATED

Severe Fracture of the Lower End of the Radius.—Ten days after the injury two injections of salyrgan produced a considerable difference in the oedema, and within five days no oedema remained.

Fracture of the Tibia and Fibula.—This was a malunited fracture which was wired in good position. Six weeks later, on removal of the plaster, union had occurred, but there was considerable oedema, which was greatly reduced within twenty-four hours of the injection of salyrgan.

Ununited Fracture of the Tibia and Fibula.—Treated with inlay bone grafts. On removal of plaster six weeks later there was pronounced oedema, which was uninfluenced by an injection of salyrgan.

Septic Hand.—The little finger and fifth metacarpal had been removed for sepsis. Traumatic arthritis of the left wrist and considerable peri-articular oedema benefited immediately as a result of salyrgan injections.

Fracture of the Os Calcis.—Treated by Böhler technique. The patient evinced considerable pain on walking about in plaster. Salyrgan was given, and the next day the patient was free from pain and the foot felt lighter and looser within the plaster. In this case the relief lasted but a few days, and repeated injections were necessary before a satisfactory result was obtained.

Fracture of Lower Limb.—Several cases of lower limb post-fracture oedema, first noted when the patients began to walk, benefited extensively and immediately. A few cases, however, failed to respond.

Oedema of a Thigh Stump.—Amputation for suppurating tuberculosis of knee-joint. The oedema diminished so that the Unna-paste covering, placed to prevent post-operative swelling of the stump, became quite loose.

CONCLUSIONS

1. Salyrgan given intramuscularly is useful in reducing localized oedema after injuries.

2. For some unknown reason a number of cases fail to respond.

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Severe Night Blindness due to Vitamin A Deficiency

The following case illustrates the rapid response to treatment that can occur when gross lesions due to vitamin A deficiency are present. It shows a striking difference from the extremely slow progress of the average beriberi case under treatment.

CASE RECORD

A Malay youth aged 18 was admitted to the Brunei Government Hospital on June 3, 1938, complaining of inability to see clearly at night. His vision was so poor at night that he could not find his way about without help.

On admission he looked a poor specimen: his weight was 86 lb., his skin was dry, and numerous black keratinous plugs blocked the sweat pores of the face. The conjunctivae were dry and lustreless, but no ulceration was present. His diet consisted of polished rice, fish, and bread, with small amounts of vegetables twice weekly. He showed no signs of beriberi. No elaborate apparatus was available for testing his capacity for dark adaptation, but the deficiency was so severe as to be easily demonstrable. He was taken into a darkened room, in which a normal person's vision was 6/9 with the ordinary test types, and at a distance of one yard from the test type he could with difficulty read the line D 60 (visual acuity 1/60). In daylight his vision was 6/5. He was given 36,000 units of vitamin A by the mouth (four capsules of haliverol, Parke, Davis and Co.), and was again tested in the darkened room one hour later. His visual acuity was now 6/60, and at one yard distance he could read the line D 12.

He was put on a liberal mixed diet in which local unpolished rice was substituted for the polished variety. Four capsules of haliverol were given three times daily, and cod-liver oil drops were instilled into the eyes twice daily. At the end of a week there was a great improvement. In the darkened room his visual acuity was now 6/9, but his skin was still dry, although the conjunctival sacs were moist.

On June 18, a fortnight after admission, his visual acuity in the darkened room was 6/6 partially; his general condition was also much improved, his skin was smooth and moist, and there were few horny plugs showing on the face. He had gained 8 lb. in weight.

He was discharged on June 30 fit and well.

O. E. FISHER, M.B., Ch.B.,
Brunei. Medical Officer.

Reviews

RADIOLOGY OF THE DUODENUM

Le Duodénum: Atlas de Radiologie Clinique. By P. Cottenot, Max Lévy, and Ed. Chérigié. Preface by M. Robineau. (Pp. 223; 496 figures. 285 fr.) Paris: G. Doin et Cie. 1938.

Since the war there has been not only great advance in *x*-ray technique but also a wider dispersal of *x*-ray apparatus, so that there are many more workers in the country. For their instruction and refreshment of knowledge a series of reference books have appeared, especially in the United States and in France. There is so much variation in the normal and abnormal appearances of even such a small portion of the body as the duodenum that a large textbook is needed to cover the subject adequately. Such a one has recently been produced by three workers in Paris and published by the well-known firm, Doin et Cie. The authors have brought together all variations of the normal and pathological radiographs of the duodenum, with a minimum of explicatory text, allowing the radiographs to be elucidated by semi-diagrammatic drawings, and have been well served by the publishers. In a short chapter on the technique for radioscopy of the duodenum they mention the essentials; they advocate the Berg compression bag to obtain strial pictures, and point out the need to see every portion of the duodenum in profile.

There is much variation in the appearance of the normal duodenum both in position and shape. Radiologists, or those to whom *x*-ray prints are submitted, must be prepared to allow for this and for anomalies caused by insufficiency of the mesentery or by fixation or variations in length bringing about redundancy. The position, filling, and movement of neighbouring organs must be taken into account in diagnosis. There is very full treatment of the appearances of duodenal ulcer and many illustrations of its varieties and the differential diagnosis. Duodenal diverticula are discussed and the fallacies that may make their interpretation difficult. As well as partly filled portions of small intestine which may be superimposed, there are dilated orifices of the ducts from pancreas and gall-bladder. As well as the ampulla of Vater, the duct of Santorini may be noted as giving rise to the appearance of diverticulum. Short but instructive sections deal with tumours of the duodenum, foreign bodies, or worms in this part of the alimentary tract, and the appearances of perforation of duodenal ulcer.

The last quarter of the book covers a discussion of the duodenum which has been subjected to operation, the effects of a normal gastro-entero-anastomosis, and stomal and jejunal ulcerations. The authors have brought a large amount of material together, and their atlas will find many grateful readers.

DEAFNESS AND HEARING AIDS

The Handicap of Deafness. By Irene R. Ewing, M.Sc., and Alex. W. G. Ewing, M.A., Ph.D. (Pp. 327; 3 plates, including a frontispiece; 84 diagrams. 12s. 6d. net.) London: Longmans, Green and Co. 1938.

The moral which is strongly urged throughout this book is that the problems consequent on deafness should be early and boldly faced by the doctor, the patient, and his relatives, in order that the ensuing physical and psychological handicaps may be minimized. The subject has been treated with a view to a wide public, who would naturally approach the matter from divergent points of view. It forms a volume (albeit rather a large one) which a doctor might recommend to deafened adults who tended to become aggrieved because of their disability and loath to take any active steps to overcome it by the use of a hearing aid or by lessons and practice in lip-reading. The second part of the book might be read with profit by any intelligent parents, faced with the knowledge that their child was severely deaf, who were anxious to learn about modern educational methods of dealing with these unfortunate children, and to hear of successes which have been achieved by boys and girls with perhaps even greater defects of hearing than that suffered by their own child.

Besides its missionary purpose the book is important because it summarizes the results and opinion of the authors, who, with Dr. T. S. Littler, were pioneers in this country in the utilization of hearing aids for the educational use of severely deaf children. Also, at the request of many doctors, they conducted the first clinic for giving advice to deafened adults as to whether their hearing residue was such that they would be likely to benefit from an electrical hearing aid. They report that of 1,037 deaf people about whom this question was asked the reply was in the affirmative for 80 per cent. This is a very encouraging figure for the deaf. But it is acknowledged in the text that not every deaf person could buy, or would use, the hearing aid recommended by them. It is interesting to note in this connexion that the authors insist on recommending the instrument which they have found by scientific test to give the best reproduction of speech. This is of course idealistic, but the practical fact remains that some deaf people will only use smaller instruments, even if they can hear more clearly with better but larger ones. The individual notes of the deaf patients who have been given as examples would have been more interesting for medical readers if greater details of the history and results of medical examination had been included. This probably could not have been easily done by the authors, as cases were usually referred to their clinic after the medical profession had indicated that they could do no more for the patient. Now that hearing aid clinics have been started at several hospitals greater facility in obtaining details of the ear condition may be expected to make progress in the improvement of hearing aids more rapid; and, moreover, the deaf will have another advantage in that they will have an easy opportunity to obtain advice about hearing aids at an earlier stage.

PREVENTION THROUGH AETIOLOGY

Causes and Prevention of Disease. By William Harvey Perkins, M.D. (Pp. 713. 35s. net.) London: Henry Kimpton. 1938.

The charge is sometimes brought against the art of medicine that, while it proclaims from time to time some notable advance in medical knowledge, it is too little concerned to follow up such discoveries by putting them into operation in a practical way. This lag of achievement behind opportunity is perhaps more in evidence in the preventive field than in the therapeutic. A new remedial instrument, whether a method or a substance, can be conveyed to the bedside, tested there by the clinician, and, if found to work, straightway added to the armamentarium of the doctor. In the case of a proposed new preventive method the course of events is not so speedy. Organization is required to test the novelty on a sufficiently ample scale to carry conviction, and even then its final acceptance into the class of genuine effectives may have to be delayed until its results can be subjected to statistical

inquiry. In the book under review Professor W. H. Perkins of the Tulane University of Louisiana deals candidly with these alleged or surmised shortcomings of the preventive art. He admits that many lacunae exist in our knowledge of prophylaxis, but at the same time he deplores that so little of what is well known already to the medical preventive expert is being competently used by administrators for the control of community disease.

Beginning with causation and prevention in their relation to heritable diseases, the author proceeds next to explore the nutritional aspects of the problem. He then deals with poisons, ingested or parenteral, and discusses such physical agents as atmospheric pressure, radiant energy, and the lightning stroke. He regards pathogenic parasitism as a more or less fortuitous stage in a blind reaching out after amicable symbiosis. His excursions into this wide and diversified field are interesting and suggestive. In later chapters he rises from the material plane into the world of thought and emotion. He considers aetiology in its bearing on personality, behaviour, and mental states, and puts forward as essential for the prophylaxis of psychological and social disease conditions the training of people in the control of feeling and emotion and the use of their intellectual faculties, as well as in the appreciation of personal values and the acceptance of social ties.

With regard to eugenics the view is expressed that the physician in a community must be a potent force to create sane attitudes towards the improvement of the inheritance pattern. If he believes, he should speak out. By so doing he will add to his usefulness. In another place the author indicts the American public for its unintelligent acquiescence in the pressure of commercial firms trading in health drinks and attractively attired sweets. He draws attention also to the needless frequency of accidents of all kinds. In order to evade the perils of the modern world the individual should possess a sound well-balanced body, alertness of mind and understanding, co-ordinated voluntary control, and responsive reflexes. Rickety ladders, worn brakes of motor cars, unsafe scaffolding, and polished floors are preventable causes of injury. Unpredictable hazards are explosions, the collapse of buildings, and assault by man or animals, but even in these unforeseen emergencies the quick response will often save beyond expectation. "Nowhere near the limit has yet been reached in the prevention of preventable accidents."

A special merit of the book is the serviceable tabulation of the community diseases according to their origins, paths of transmission, portals of entrance to the human body, methods of specific therapy, and principles of control. In the spacious domain of his choice the author has left little unsaid. As an aid to speculation upon the ultimate origins of disease and the repression of its noxious influences his book will be found of value.

FACTORS THAT PROLONG GESTATION

Studies in Prolonged Pregnancy in Rats. By Finn Boe. *Acta Pathologica et Microbiologica Scandinavica,* Supplementum 36. (Pp. 146; 26 figures, 27 tables. Free to subscribers.) Copenhagen: Levin and Munksgaard. 1938.

Various methods have been used in the investigation of the hormonic factors which are concerned in the maintenance of pregnancy and in the initiation of parturition. Dr. Finn Boe, in his "studies on prolonged pregnancy in rats," has described his investigations into the effects of procedures which cause a prolongation of the gestation. Like several previous observers he has found that the expulsion of the uterine contents can be prevented at full term by the administration of gonadotropic hormone or of the ovarian hormones, and that a similar effect is also brought about in the rat when the pituitary is removed in the later stages of pregnancy. The effect on the foetal development varied with the hormone administered; when gonadotropic hormone from mare serum or oestrone was injected a pronounced inhibition of foetal development occurred; on the other hand, the weights of the foetuses were distinctly increased during the prolonged pregnancy when gonadotropic hormone from human pregnancy urine or progesterone was administered. From these results the author concludes that the effects of various types of gonadotropic hormone on pregnancy are essentially due to the ovarian hormones secondarily produced in the organism.

Unfortunately, in his interesting discussion of the action of the gonadotropic and ovarian hormones in pregnancy, the author has not taken into consideration the recent findings that oestrogens may play an important part in the control of the luteal function, and it is possible that some of the results which Dr. Finn Boe has attributed to the action of oestrin on the uterine contents may in actual fact be due to effects on the luteal activity.

Though the author, in his own words, has obtained "very little which can be said to throw light on the initiation of parturition," he has carefully collected many interesting results which may ultimately help in the elucidation of this very difficult problem.

PULMONARY TUBERCULOSIS IN THE APPARENTLY HEALTHY

La Tuberculose Pulmonaire chez les Sujets apparemment Sains et la Vaccination Anti-tuberculeuse. By L. Sayé. (Pp. 255; 88 figures, including 32 plates. 24 tables. 60 fr.) Paris: Masson et Cie. 1938.

An extensive literature has in recent years accumulated on the subject of pulmonary tuberculosis in apparently healthy groups of the population—students, nurses, army recruits, industrial employees, etc. In his book Professor Sayé reviews most of the papers that have been published from several countries in Europe and America, and adds his own valuable observations made at the University of Barcelona. Moreover, he discusses in detail the types of lesions that may be found during such mass examinations, and attempts to define their pathogenesis, trace their course, and suggest their management. It is obvious, however, as he frankly states in his introduction, that many problems arising out of this aspect of pulmonary tuberculosis still remain to be solved. The volume is illustrated by radiographs, many of which are reproduced full-size in part. Since the lesions depicted are often small and inconspicuous, reproductions of radiographs of such lesions need to be particularly good to be convincing. This has not been achieved by the publishers in every instance.

Professor Sayé traces the development of the systematic radiological examination of groups of the population. As far back as 1902, Salles published the results of the examination of 286 soldiers belonging to a battalion at the battle of Vincennes. Since 1909 Ledoux-Lebard has had the chest of every patient examined by *x* rays before an operation. But it is only since 1920, when Myers in the United States began the examination of students, that much interest has been taken in such investigations. In 1921 Redeker initiated it for contacts in Germany; in 1923 Rist in Paris was charged with the routine radiological examination of all those seeking employment in the *Assistance Publique,* and Adler in Switzerland practised it among army recruits. Since then the number of investigations and the variety of groups investigated have

increased yearly. Professor Sayé has therefore done a service in making available most of this work in a concise and readable form.

The last section of the book comprises a full discussion of B.C.G. vaccination. He admits the statistical errors previously made in assessing its value, adds some recent investigations on hypersensitivity following vaccination, and discusses the possible use of the method in adolescents. The account is particularly interesting for the inclusion of a description of the tuberculous lesions found in children who had been vaccinated about ten years previously.

Notes on Books

Like everything else about the "man of destiny," his diseases and their explanations never cease to excite interest, and *Napoleon: A Medical Approach*, by BORIS SOKOLOFF (Selwyn and Blount, 10s. 6d.), which is not strictly confined to medical aspects, contains plenty of attractive information about the great Napoleon. The author, who is stated to be working in a cancer institution, considers in detail the evidence about the incidence of malignant disease in the Napoleonic family. As the age of 40 approached a profound change took place in the Emperor's physical constitution; in 1913 the late Leonard Guthrie explained this as due to hypopituitarism, and Dr. Sokoloff now comes to the same conclusion.

The Human Body, by Dr. LOGAN CLENDENNING, which has now reached its third edition (Heinemann, 12s. 6d.), was written with the intention of explaining some of the intricacies of the human body to the intelligent layman. The success of the book indicates that the author has succeeded very well in his difficult task. He has taken great pains to bring his information up to date in his latest edition, and the book can indeed be recommended to medical practitioners who wish to read a general survey of modern knowledge of physiology. Dr. Clendenning has a critical mind and a wide experience of medical practice, and he discusses in an interesting manner problems of general medical concern, such as the influence of heredity and environment, the causation of high blood pressure, etc.

The safe, and at the same time efficient, radium treatment of lesions of the mouth, orbit, and antrum has long presented a problem of no small difficulty to the radiotherapist. In his monograph *The Construction of Vulcanite Applicators for applying Radium to Lesions of the Buccal Cavity, Lips, Orbit, and Antrum* (John Murray, 5s.) Mr. D. G. WALKER gives the results of three years' work carried out at the Middlesex Hospital in collaboration with the department of radiotherapy. About a third of the book consists of excellent photographs by Miss D. F. Clephan, illustrating constructional methods and modes of application. The apparatus described, in addition to combining efficient dosage with adequate protection, is specially planned to add to the comfort of the patient during irradiation. The book is a valuable record of great progress in an important field of radiotherapy.

The *Formulaire des Médicaments Nouveaux* was instituted in 1891 and has now attained its thirty-eighth edition (Paris: J.-B. Baillière et Fils, 70 fr.). The original editor was Bocquillon-Limousin and the present editor is Dr. R. WEITZ. The scope of the volume is somewhat similar to that of the *Extra Pharmacopoeia*. Drugs are described in alphabetical order and a short monograph is devoted to each drug. The chief information provided is the synonyms under which the drug is known, its chemical structure and properties, its therapeutic properties, and the manner in which it is used. A number of references to recent work are included. The scope of the work is indicated by the fact that the index contains about a thousand titles. The volume will be found particularly useful by those who wish to obtain information regarding the nature of French proprietary drugs and preparations.

Allgemeine Pharmakologie, an outline for doctors and students by Dr. FRIEDRICH AXMACHER (Berlin: Julius Springer, RM. 9.60), is a short volume (189 pages) in which the author sets out certain general pharmacological principles. The subject is one of peculiar difficulty because pharmacology presents a vast mass of detail in which singularly few general rules are discernible, and such rules as exist are distinguished by the number and variety of the exceptions with which they are encumbered. The following are some of the problems dealt with: distribution and excretion of drugs, relation between concentration or dose and action and time; drug tolerance and allergy; alteration of drugs in body; synergism and antagonism of drugs; chemical constitution and pharmacological action. Dr. Axmacher has made important researches on fundamental problems in pharmacology and has a wide knowledge of the literature. Here he makes a judicious selection of his evidence and provides an excellent introduction to a difficult subject.

Preparations and Appliances

A DEVELOPMENT IN VITAMIN THERAPY

Hesperidin (vitamin P) tablets G.L. (Glaxo Laboratories, Ltd.) represent an interesting new development in vitamin therapy. Szent-Györgyi and his school concluded that certain of the manifestations of experimental scurvy in guinea-pigs were not amenable to treatment with pure ascorbic acid, but were cured with crude preparations of vitamin C. They also made clinical observations on cases of vascular purpura, and finally hesperidin, a flavone present in citrus fruits, was identified as an active principle with curative action in spontaneous capillary haemorrhages. Scarborough and Stewart, working in Edinburgh, have confirmed the activity of hesperidin in clinical cases. The compound is now made available for general clinical use. The dose suggested is about 1 gramme daily by mouth.

HIGH POTENCY CALCIFEROL

High potency "Ostelin" tablets (Glaxo Laboratories, Ltd.) each contain 50,000 units of vitamin D. The pharmacopoeial therapeutic dose of this vitamin for an infant is 5,000 units daily. The high potency tablets are intended for intensive therapy in cases of gross vitamin D deficiency and in certain other conditions. Satisfactory results have been described with this method in various disorders, including parathyroid tetany, rickets, chronic arthritis, and psoriasis. Overdosage of calciferol is known to produce characteristic toxic effects, and the high potency of the remedy indicates the necessity for care in its employment. The preparation is marked "To be taken only under medical supervision."

NICOTINIC ACID TABLETS

Nicotinic acid G.L. (Glaxo Laboratories, Ltd.) is put up in tablets, each containing 50 mg. nicotinic acid. In recent years it has been shown that this substance produces a remarkable curative action in pellagra and is effective by either oral or parenteral administration. The dosage suggested is 200 to 500 mg. daily.

NASAL JELLY

Nasal jelly (Glaxo Laboratories, Ltd.) contains the antivirus of *B. pneumoniae* (of Friedländer), *M. catarrhalis*, and mixed streptococci. It is recommended for local application in the common cold, chronic rhinitis, and influenzal sinusitis.

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THE WATCH ON THE THAMES

There are features of unusual interest in the report for 1937 of the medical officer of health for the Port of London, Dr. C. F. White, who, after ten years' tenure of this important position, has recently been appointed medical officer of health for the City. The report summarizes the revised instructions of the Board of Trade with regard to crew accommodation. These overdue reforms will be carried into effect in all new ships, and it is hoped that these fresh regulations may also stimulate owners to undertake reasonable and practical improvements in existing ships when opportunity occurs.

As an example of the deplorable conditions still ruling to-day, the case is cited of one ship in which no fewer than twenty-eight defects were reported by an inspector of the Port. It is satisfactory to record that the owners concerned had the necessary work put in hand immediately, while on its completion two members of the crew wrote grateful and appreciative letters to the Port M.O.H. on behalf of their shipmates. The report especially stresses the unhygienic conditions in small coasting vessels. "In the small ship there are no messrooms, no wash-place, no clothes lockers, no drying-rooms, no oilskin lockers." Food is kept in all sorts of places—in boxes in alley-ways and under bunks, and has even been found in water-closet compartments. Of 128 vessels, the subject of a special inquiry, thirty had no cooks. Tired men preparing their own food rely on the frying-pan, the tin-opener, and strong tea. It is thus scarcely surprising that digestive troubles appear to be very common among the crews of coasters. The hard lot of these men is further aggravated by the long hours of work, stated in some cases to total as much as 120 hours and reaching on an average 110 hours a week.

The report contains a most interesting account of the measures employed with regard to a ship in which rodent plague was suspected. The vessel arrived at Gravesend on July 1 with a general cargo from Far Eastern ports and showed a clean bill of health. Proceeding to King George V Dock, she was inspected on the following morning by a sanitary inspector and rat officer, when a "deratization" certificate was produced, issued on April 28 in Kobe, where thirteen dead rats had been recovered after fumigation. The vessel continued to discharge cargo over the week-end, but on the morning of July 5 the sanitary officer was notified that a number of dead rats had been discovered in the holds, and that stevedores were complaining of the smell of the decomposing bodies. Further inquiries elicited the information that 261 rats had been caught and destroyed in the course of the voyage. Two dead rats, together with another freshly killed by the rat officer, were immediately dispatched to the Seamen's Hospital, Greenwich, where, in the case of two animals, macroscopic examination revealed a condition strongly suggestive of plague, while in films from glands and spleens bacilli morphologically identical with *B. pestis* were demonstrated. All work on the ship was stopped forthwith, and fumigation with hydrogen cyanide began the same evening. As a result 432 dead rats were taken from the ship, all of which were dispatched for examination. When, however, the holds were empty, a further space offering extensive rat harbourage was discovered, and a second fumigation was ordered, yielding another 103 dead rats. The difficulties of the Port health authorities were increased by several complicating factors. Before the discovery of the suspected rats most of the London cargo had already been unloaded, the greater part, fortunately, into lighters. Forty-three lighters were fumigated with the cargo *in situ*, and the remaining seven, which had discharged their freight, were also dealt with. In addition to the London cargo the ship carried goods consigned to Hamburg, including 20,000 cases of chilled eggs. This Hamburg cargo had to be unloaded before fumigation and reloaded, maintenance of refrigeration of the eggs further complicating the procedure. The report states that owing to the advanced degree of decomposition of the two rats which appeared to be infected, it was not found possible to confirm the diagnosis of plague by culture and animal inoculation.

This interesting account throws light on the magnitude of the task confronting the Port health authorities in such cases. To trace numerous lighters dispersed throughout the Port, to arrange for the follow-up of all personnel involved, and to ensure the collaboration of shipowners (for whom the necessary measures inevitably involve no small financial loss) demands a highly efficient organization, more especially since the time factor is all-important. It is obvious how readily such a disease as plague might establish itself in the metropolis but for the constant vigilance of the Port of London health authority.

MALE HORMONES

The testicle of vertebrates has at least two functions: the first is the formation of germ cells; the second is the secretion of substances which are liberated directly into the blood stream—the male hormones. The failure of development of secondary sexual characteristics which follows castration of the young male has been recognized for centuries, but it was not until 1849 that Berthold demonstrated that this result of castration could be overcome in the cock by grafting testicles elsewhere. Much work has since been done on isolating the substance responsible for this effect. A crystalline substance with male hormone activity, androsterone, was isolated from urine in 1931 by Butenandt.[1] A closely related substance, testosterone, was isolated from bull's testicle in 1935 by David,[2] and other substances having androgenic activity have also been discovered. They are all steroids and are closely related to a group of compounds with oestrogenic activity and to another group with progestin activity.

Injection of pure male hormone into normal and castrated animals soon led to an understanding of its function. Zuckerman and Parkes[3] in 1938 showed that the fur of the male hamadryas baboon changed after castration to that of the female, but prolonged treatment with testosterone propionate led to the gradual change from the greenish brown of the female to the grey of the male. The characteristic cape of the male was also restored. Injection of the same substance into a castrated immature rhesus monkey[4] made the animal fiercer and more dominant. Flushing of the "sexual skin," such as occurs in the normal male, also came on gradually and the external genitalia grew appreciably larger. There was a notable effect upon the internal reproductive organs, which normally atrophy after castration. At necropsy the prostate, vas deferens, and Cowper's glands of the experimental animal were found to be as large as those of a normal mature rhesus monkey and histologically similar. In the female androgenic substances inhibit follicular maturation and luteinization and suppress the menses, as Zuckerman[5] has demonstrated in the rhesus monkey. The observations of Papanicolaou and Falk[6] suggest that androgenic hormone may cause a general muscular hypertrophy. Castration of a male guinea-pig led to a diminution in size of muscles which was most readily recognized in the temporals. These returned to normal after injection of testosterone propionate but were unaffected by oestrogens. They found, too, that injection of gonadotropic hormone over a period of weeks gave rise to muscular hypertrophy in the normal guinea-pig but not in the castrated animal. They regarded this as additional evidence that the effect was wrought through the testicle. The injection of androgenic substances into the normal rat leads to a histological change in the pituitary gland, which according to Wolfe and Hamilton[7] consists of a degranulation of basophil cells. They observed an even more striking effect in the castrated rat, in which the pituitary gland underwent remarkable changes, most notable of which was an increase in number and size of basophil cells with the formation of basophil signet ring or "castration cells." The pituitary gland of the castrated rat returns to normal after injection of male hormone.

In the human being male hormone is excreted in the urine in measurable quantities in both the male and the female. After a certain degree of purification the excreted hormone is estimated by measuring the comb growth in the caponized cockerel that follows injections of this material. Recently N. H. Callow, R. K. Callow, and Emmens[8] have described an improved colorimetric method of estimating the amount of male hormone in the urine which has considerable advantages over methods of biological assay. The amount of male hormone excreted by the adult female is almost as large as that excreted by the adult male. In some disorders it may be much increased, as, for example, in cases of suprarenal cortical tumours associated with the clinical conditions of virilism or basophilism. R. K. Callow[9] described a girl aged 6 in whom the excretion was of the order of twenty to forty times the normal: trans-dehydroandrosterone was isolated from the urine of this patient. It is evident that androgenic substances may be produced by some other organ as well as by the testicle, and it seems likely that the suprarenal cortical tumour was responsible for this in Callow's case.

A pure substance having male-hormone activity—testosterone propionate—is now being used in many different clinical conditions. Benign enlargement of the prostate has been treated by injections of male hormone in the belief that it is due to excessive secretion of oestrogenic substances thought to occur when the secretion of male hormone falls off in old age. A number of workers have reported benefit in selected cases in which the residual urine is small, but Clarke[10] points out

[1] *Z. Angew. Chem.*, 1931, **44**, 905.
[2] *Acta brev. neerl. Physiol.*, 1935, **5**, 85.
[3] *J. Anat.*, Lond., 1938, **72**, 277.
[4] Ibid., 264.
[5] *Lancet*, 1937, **2**, 676.
[6] *Science*, 1938, **87**, 238.
[7] *Endocrinology*, 1937, **21**, 603.
[8] *Biochem. J.*, 1938, **32**, 1312.
[9] *Chem. Ind.*, 1936, **55**, No. 51, 1030.
[10] *Brit. J. Urol.*, 1937, **9**, 254.

that in his series of ninety-three mild cases of prostatic enlargement there was sustained improvement in a large number after no other treatment than instrumentation. There is obvious need for further carefully controlled work before the value of hormonal treatment of enlarged prostate can be assessed. There has been much talk about rejuvenating the aged by implanting monkeys' testicles into them. Venzmer[11] carried this treatment a step further by injecting male hormone into aged and prematurely aged subjects. He claimed good results, but made no attempt to control his experiments; and, after all, there is no evidence that the eunuch dies young—on the contrary, in many respects he never grows up. Desmaret and Capitain[12] have claimed beneficial effects from treating with male hormone a small series of cases of painful enlargement of, and cysts in, the female breast. Patients with irregular, painful, or retarded menstruation and with menopausal disturbances are also stated by these authors to respond well to treatment with male hormone. Similar results have been recorded by Loeser[13] and by Foss.[14] The effect of androgenic substances on a physiological castrate has been studied by Hamilton,[15] who reported the case of a sexually underdeveloped male aged 27 in whom testosterone acetate and propionate caused definite growth of the genital organs associated with priapism. Similar results were reported by Foss[16] in one case and by Kenyon, Sandiford, Bryan, Knowlton, and Koch[17] in a group of seven cases. Carolli and Girrard[18] recorded a male aged 54 with testicular atrophy, absent beard, and deficient axillary and pubic hair associated with a myxoedema-like infiltration of the skin. They described the condition as the "syndrome thyroïdo-testiculaire," and found the polypeptide nitrogen to be increased to 0.186 gramme per 100 c.cm. of blood. This fell to 0.036 gramme per 100 c.cm. of blood after treatment with testosterone propionate, rising again to 0.069 gramme after cessation of treatment and falling again to 0.026 when it was once more resumed. This was associated with disappearance of the myxoedema-like infiltration, and with increased suppleness, of the skin. There was a return of erections, which the patient had not had for a year. Experimental evidence shows that injection of male hormone in normal and castrated animals has a masculinizing effect. Clinical evidence from the increased excretion of male hormone in sufferers from suprarenal cortical tumour with basophilism, or of virilism in females, also suggests a masculinizing role for this hormone. The most obvious clinical applications of male hormone would appear to be, therefore, in men whose virility is incomplete or has regressed, and possibly in women whose uterus or breasts are over-active.

[11] *Dtsch. med. Wschr.*, 1937, **63**, 1402.
[12] *Presse méd.*, 1938, **46**, 185.
[13] *Lancet*, 1938, **1**, 373.
[14] Ibid., 992.
[15] *Endocrinology*, 1937, **21**, 649.
[16] *Lancet*, 1937, **2**, 1307.
[17] *Proc. Soc. exp. Biol.*, N.Y., 1938, **37**, 683.
[18] *Bull. Mém. Soc. méd. Hôp. Paris*, 1938, **54**, 272.

MATERNAL MORTALITY RATES

Maternal mortality has in recent years come in for so much public discussion that one notes with surprise that a striking fall in the maternal mortality rate in 1936–7 has enjoyed but little public notice. Indeed, the leader in the *Times* of November 1 dealing with the report of the Chief Medical Officer of the Ministry of Health for 1937 contains no reference whatsoever to this event. Despite the very considerable activities of local authorities in the provision of ante-natal clinics and hospital accommodation the maternal mortality rate showed, over a considerable period of years, no decline. Although, during 1928–31, the tendency was in a slightly downward direction, in 1932–4 the puerperal mortality rate per 1,000 total births was 4.04, 4.32, and 4.41 respectively—that is, substantially higher in 1933 and 1934 than in any of the years since registration of stillbirths. If the rates are compared on the basis of live births alone, it will be found that they remained fairly constant from 1911 to 1932. In short, the puerperal mortality rate was not falling in 1934. In 1935, 1936, and 1937 the puerperal mortality rates per 1,000 total births were 3.94, 3.65, and 3.13 respectively. Analysis of these figures shows that the greatest decline is in the puerperal sepsis mortality rate, the figures for the last four years being 1.95, 1.61, 1.34, and 0.94 respectively per 1,000 total births. There is little doubt that the discovery and use of sulphanilamide in the last two years have contributed to this reduction, although possibly a more important factor is the lower incidence of streptococcal diseases of all kinds. In this connexion it is significant that the figures for the notification of erysipelas for 1937 are lower than those for 1934 by 25 per cent. On the other hand, toxaemias of pregnancy show a rising mortality, though 86 per cent. of all investigated fatal cases (excluding cases of abortion and ectopic gestation) had received antenatal care.

All other causes of death ascribed to child-bearing and pregnancy, including abortions, show a decline. It is reasonable to infer that there is in the country at present a higher standard of midwifery practice amongst general practitioners, midwives, and hospital staffs than was general ten years ago when the Departmental Committee on Maternal Mortality and Morbidity was making its investiga-

tion. Whatever the value of the work undertaken at ante-natal clinics the conclusion must be drawn that some other factor or factors are responsible for this gratifying improvement in the figures for maternal mortality. Furthermore, it is desirable to place on record that the improvement has taken place before local authorities have had an opportunity of implementing the proposals contained in Circular 1705 of the Ministry of Health. Discussion on the subject of maternal mortality has too often evoked more emotion than accuracy, and it is as well that the profession and the public should realize this fact.

"WILKIE'S CHRONIC DUODENAL ILEUS"

The publication of the William Mitchell Banks Memorial Lecture for 1938 by the late Sir David Wilkie in the current issue of the *Liverpool Medico-Chirurgical Journal* is of special interest not only for its intrinsic value as a contribution to surgery but also because it records one of the last lectures delivered by Sir David before his untimely death. His writings, especially upon abdominal surgery, always commanded the greatest of attention and admiration among surgeons, but this dissertation upon chronic duodenal ileus deals with a subject which was peculiarly his own, and records an experience of the condition which is probably unparalleled. It was, indeed, an earlier article upon this subject in the *British Journal of Surgery* in 1921 which may be said to have aroused interest in the condition in this country. It has at times been referred to as "Wilkie's chronic duodenal ileus." Sporadic reports of acute duodenal ileus had appeared for many years previous to this; it was the special value of Wilkie's work that he recognized and described as a clinical entity the symptoms of a chronic form of the same lesion. In an early paragraph he addresses himself to the question: "Does a chronic obstruction of the duodenum occur as a pathological and clinical entity?" His conclusive answer is that there are abundant records by many observers of the demonstration of such obstruction both *in vivo* and at post-mortem examination. In these cases the obstruction resulted from many different causes, the chief being (*a*) congenital anomalies of intestinal rotation; (*b*) a drag upon the mesentery in visceroptosis and other postural defects; (*c*) infiltration of the mesentery by malignant disease; (*d*) pressure from enlarged mesenteric glands, tuberculous or lymphadenomatous; (*e*) cicatrization following anastomotic ulceration after gastro-enterostomy. The possibility that the condition may arise from an achalasia, as in Hirschsprung's disease of the colon, is also considered, although no cases of this type were met with. The chief complication of the condition is acute duodenal ileus and dilatation of the stomach, but stasis in the duodenum appears to predispose to the development of gastric and duodenal ulceration, since such ulcers were found in no fewer than thirty-five of the 135 cases operated upon. On the contrary, in only six cases was a recognizable cholecystitis present. The clinical picture, while in some cases unmistakable, is often "overcast and unconvincing." Gastric flatulence is the most constant symptom, with recurring attacks of bilious vomiting. These, in a patient of visceroptotic build, are very suggestive, and the diagnosis is greatly helped if the symptoms are relieved by the adoption of the prone or genupectoral position. The association of migraine with the condition has attracted the attention of many writers. Obviously, the ultimate diagnosis depends upon the radiographic demonstration of a very dilated actively contracting duodenum, often with a "mosaic" pattern of the mucosa. Treatment of chronic duodenal ileus must of necessity vary with the cause. In the milder visceroptotic cases rest in recumbency followed by postural training and the use of a suitable belt will bring about a symptomatic cure. For the majority of cases, however, Wilkie believed that operative treatment is advisable. Since the cause of the obstruction can but rarely be relieved most surgeons rely upon a short-circuiting by anastomosing the dilated duodenum to the first loop of jejunum. This operation was performed upon 127 cases in this series; in thirty-eight the operation was combined with some other procedure such as gastro-enterostomy, gastro-duodenostomy, etc. The mortality rate of the operation was between 6 and 7 per cent. Operative treatment "gave on the whole a gratifying impression." Reading between the lines one gets the feeling that the results in the really pronounced cases were excellent, but that, as would be expected, in cases where the diagnosis was not so well established the results were correspondingly doubtful. This is in accord with experience in other branches of abdominal surgery, and is a point to which insufficient attention is paid in assessing the value of various operations. It has not escaped Wilkie's notice, for he wisely remarks that after initial successes in marked cases there is a tendency to try any new treatment in "less pronounced cases and in a number of doubtful examples when the early promise of success is not fulfilled. . . . The surgeon thus becomes more discriminating and critical in the selection of his cases. . . ." If the article contained no more than this penetrating commentary on surgical philosophy it would be well worth most careful study; as it is, it constitutes a memorial to Wilkie's pioneer work in this particular field.

THE UNITED KINGDOM AND THE DRUG TRAFFIC

The report of H.M. Government to the League of Nations on the traffic in opium and other dangerous drugs for the year 1937 might serve as a model for some other Governments which are parties to the several conventions. It follows the now familiar lines dealing with the administration nationally and internationally, with the Conventions of 1912, 1925, and 1931, with illicit traffic, and with addiction. The assurance is repeated that "addiction to narcotic drugs is not prevalent in the United Kingdom." The known addicts number 620, 300 men and 320 women; of the total 132 were medical practitioners, five were pharmacists, two were veterinary surgeons, and one was a dentist. In 72 per cent. of the cases morphine was the drug of addiction, in 17 per cent. heroin, and in 8½ per cent.

cocaine. There was no evidence of organized illicit traffic in this country. The thirty-nine prosecutions under the Dangerous Drugs Acts in 1937 were in all cases for breaches of the Acts and Regulations, and not in respect of trafficking. The Drugs Branch of the Home Office co-operated successfully with Canada, Egypt, the United States, Holland, and France in regard to illicit traffic abroad. The possession and use of prepared opium (for smoking) are totally prohibited, and when seized it is confiscated and destroyed. It is chiefly among Chinese nationals, temporarily resident here, that cases of illicit smoking occur. From the appended tables of statistics it appears that in 1937 11,558 oz. of British-made morphine and 2,162 oz. of heroin were exported, the chief destinations to which they were consigned being India and the Dominions.

DEFECTIVE FAT ABSORPTION IN CHILDHOOD

In spite of extensive researches into the results of defective fat absorption in coeliac disease the underlying cause of the condition still remains largely a mystery. The term "pancreatic infantilism" is now no longer used as a description of the delayed growth and development commonly seen in coeliac disease, since it has been felt that in most cases there is little evidence for attributing the symptoms to failure of pancreatic secretion. The fat in the stools, though present in greatly increased amount, is normally, or almost normally, split, and this has been taken to indicate that pancreatic digestion is not impaired. This is confirmed by the observation of many authors that enteral administration of pancreatic extracts is unlikely to effect clinical or biochemical improvement. A recent paper by D. H. Anderson,[1] however, suggests that a closely similar or identical clinical picture to that of coeliac disease may result from, or be associated with, cystic fibrosis of the pancreas, and the author contends that coeliac disease (referred to by some American authors as "chronic intestinal indigestion") should be regarded as a syndrome rather than a disease entity. Observing a case of clinical coeliac disease in which during life there had been a high percentage of split fat in the stools and at necropsy a cystic fibrosis of the pancreas was discovered, the author concluded that the usual criteria for differentiating pancreatic steatorrhoea from coeliac disease were unreliable, and she was stimulated to review a series of forty-nine cases (twenty-two reported for the first time) in which extensive pancreatic fibrosis had been demonstrated post mortem. Clinically the cases could be divided into three groups: the first, newborn infants; the second, infants from 1 week to 6 months of age; and the third, over 6 months. In the first group the infants all died with symptoms of intestinal obstruction, from different causes. In the second group there was from birth failure to gain weight adequately, distension of the abdomen, hunger, large (sometimes recognizably fatty) stools, intolerance to fat in the diet, and chronic respiratory infection. The third group (twenty-five children from 6 months to 14½ years old) had usually suggested the diagnosis of coeliac disease, but in four a diagnosis of pancreatic insufficiency had been made. The author regards the pancreatic lesion as secondary to obstruction of the small or large ducts, and discusses the evidence for regarding the condition as congenital (in some cases due to foetal inflammation). In analysing the clinical reports it is clear that the usual criteria for diagnosing pancreatic insufficiency—namely, absence of split fat in the stools and failure of the patient to respond to a coeliac diet—are unreliable and that the diagnosis can only be made with certainty by examination of the duodenal contents for pancreatic enzymes. It was also frequently observed that many infants showed in addition evidence of vitamin A deficiency and frequently osteoporosis, probably due to inadequate absorption of vitamin D or calcium. Professor Leonard Parsons, in the first Dawson Williams Memorial Lecture, printed in this issue at page 929, surveys the field of investigation of coeliac disease for which he has been so largely responsible. If deficient absorption of fat is taken as the primary defect various symptoms due to vitamin and mineral deficiency arise as secondary manifestations. The demonstration that absorption of carbohydrate as well as of fat is impaired suggests that intravenous glucose may be a valuable addition to therapy. The early treatment of coeliac disease—namely, a rigid limitation of fat in the diet—is now recognized as laying the patient open to symptoms of severe deficiency in vitamin D unless he is protected by the addition of the vitamin in concentrated form or by ultra-violet light therapy. Deficiencies of vitamins A, B, and C are less commonly recognized than "coeliac rickets," but all should be specifically guarded against. The use of liver in treatment of coeliac disease appears to have some value, though seldom gives dramatic results. Although Dr. Anderson's work may prove to be important in the understanding of a certain type of case often described as coeliac disease, it would appear that in the majority of cases of defective fat absorption in childhood our present knowledge of the secondary complications and their prevention and treatment is still very much in advance of our understanding of the underlying pathogenesis.

[1] *Amer. J. Dis. Child.*, 1938, **56**, 344.

STUDIES ON CORONARY OCCLUSION

It cannot be said that the anatomy and pathology of the blood vessels supplying the heart have been neglected in the past, but what neglect there may have been has certainly been remedied since acute cardiac ischaemia and myocardial infarction became subjects of the first clinical importance. Thrombosis within the lumen of a coronary artery is the commonest cause of a cardiac infarct, but an infarct may occur without complete obstruction—or at least where it cannot be found by the pathologist. In such a case it is possible that lowered blood pressure of whatever origin will produce an infarct where there is widespread disease and narrowing of the coronary vessels. Another cause of coronary obstruction is haemorrhage into the wall of the coronary artery itself by the rupture of capillaries which have been shown to be present in the intima in relation to atheromatous lesions, and to originate both in the lumen of the vessel and also in the adventitia.

Recent papers by J. C. Paterson[1] and W. B. Wartman[2] suggest that this lesion is responsible for a considerable proportion of cases of coronary occlusion. Thrombosis within the lumen of the artery may follow as a secondary effect, but does not always do so. If intramural haemorrhage is a frequent primary event, then the likelihood that heparin will prove of value in the prophylaxis of coronary occlusion[3] is lessened, since its action in preventing thrombosis would presumably be more or less offset by that of promoting intramural haemorrhage. Some valuable results on the anastomoses of the coronary vessels and a new method of studying them are published by M. J. Schlesinger,[4] who rightly points out that ordinary dissection must fail to explore them adequately, and that radiography of the heart after injection of an opaque medium is unsatisfactory because of the overlapping of vessel shadows. His method is to cut the heart so that it can be unrolled and *x*-rayed flat after the injection of a multi-coloured suspension of lead phosphate in agar. It is claimed that in this way the entire course of all arterial branches can be visualized, and after an examination of normal hearts, and even of senile hearts, by this method it was found that the coronary arteries are true end-arteries, with no anastomoses: only when and where there is disease of the arteries leading to more or less obstruction do anastomoses develop, and they are limited to the areas where they are needed. L. N. Katz, W. Weinstein, and K. Jochim[5] have performed some interesting experiments on the effects of perfusion of the dog's heart with beef blood. They found that in the isolated heart the coronary flow rapidly diminished and then ceased, indicating an intense vascular spasm. The substance responsible for this action appeared to be a constituent of the serum of the blood from the foreign species, and the whole animal and also the isolated heart could be made refractory to its effect by the repeated passage of beef blood through the animal. Such an action may be involved in producing the retrosternal pain occasionally complained of by patients during blood transfusion, and it also adds interest to the case reported by W. B. Bean[6] of cardiac infarction following transfusion for haemorrhage from peptic ulcer, though the haemorrhage itself may have been the precipitating agent.

SUGAR IN AUSTRALIAN DIET

The fifth report of the Advisory Council on Nutrition, Commonwealth of Australia,[7] contains a formidable mass of analyses of Australian foodstuffs. It is stated that there are no very profound calorific differences between Australian foods and foods over-seas. It is suggested that improvement in certain foods, such as cakes and biscuits, many of which are of value purely from a calorific point of view, could be obtained by the addition of extra protein, derived, for example, from skimmed milk, or by the inclusion of sources of vitamins or minerals. Breads could be improved by the addition of skim milk, whey, or wheat germ. The tendency of Australians to consume large quantities of sugar is borne out by the investigation of the domestic food record books of a number of families, showing that nearly 8 per cent. of the items of food consumed consisted of various types of sweets. It is pointed out that, apart from their sugar content, certain sweets contain other substances of considerable nutritive value. Some caramels, for instance, may contain as much as 11 per cent. of fat, while good toffee or butter-scotch may contain 5 or 6 per cent. Chocolates, too, are a source of vegetable fat. Nevertheless, Sherman is quoted as maintaining that in nature sugar is essentially a bait to induce consumption of certain fruits and vegetables, which contribute not only sugar but also necessary minerals and vitamins to the diet, while nowhere in nature can sugar be found in such concentrated condition or in such a large amount as may be obtained in a sweetshop.

[1] *Arch. Pathol.*, 1938, **25**, 474.
[2] *Amer. Heart J.*, 1938, **15**, 459.
[3] Solandt, D. Y., and Best, C. H.: *Lancet*, 1938, **2**, 130.
[4] *Amer. Heart J.*, 1938, **15**, 528.
[5] Ibid., 452.
[6] Ibid., 1937, **14**, 684.
[7] L. F. Johnston, Commonwealth Government Printer, Canberra, 1938.

CARBARSONE IN AMOEBIASIS

Modern methods of treatment in amoebiasis—as in so many other parasitic infections—appear eminently satisfactory in their immediate results but considerably less so when the treated cases are followed up adequately. It is rare to find a case of acute amoebiasis failing to respond rapidly to emetine hydrochloride, but unfortunately large numbers of cases relapse after treatment is suspended, or else develop into chronic cases and continue to pass cysts. This has naturally stimulated a search for better remedies, and there are now largely employed not only further derivatives and compounds of emetine, but also drugs of other types, notably quinoxyl and stovarsol. Some seven years ago carbarsone, claimed to be more effective and less toxic than stovarsol, was introduced. The conclusions arrived at in a recent paper[1] are that small doses of 0.5 gramme of this arsenical, daily for ten days, cure some carriers, but that in acute amoebic dysentery such small doses may not only fail to cure but may be insufficient to clear the stools of *E. histolytica* and control the dysentery. Large daily doses of 0.025 gramme per kilogramme body-weight, however, promptly relieve the dysentery and bring about a clinical cure—and in some cases eradication of the infection and actual cure—although even these doses may fail to cure some carriers. It is suggested that the extent of the lesions, the resistance of different races to *E. histolytica*, and the general condition and environment of the patient may all be involved in the production of these variations in therapeutic effect. Whatever the explanation it is clear that considerable caution must be displayed in drawing conclusions as to the comparative efficacy of different compounds in this infection. In the treatment of amoebiasis it is generally thought that a judicious combination of drugs gives the best results, and from the controlled experiments with carbarsone alone it seems as if this drug may play a most useful part in such combined therapy.

[1] *Amer. J. trop. Med.*, **18**, 245.

SURGICAL PROCEDURES IN GENERAL PRACTICE

This is one of a series of articles contributed by invitation

ACUTE INFECTIONS OF THE BREAST

BY

CHARLES DONALD, Ch.M., F.R.C.S.

The ideal management of any disease is its prevention. Acute mastitis and its possible sequel, acute mammary abscess, occurring in the period of lactation, are often preceded by conditions the suitable treatment of which may have a preventive effect. Lack of care of the nipples in the later weeks of pregnancy and during lactation, inadequate treatment of a cracked or sore nipple, and failure to prevent stasis within the breast may all contribute to the production of those infections; but it should be added that in spite of every care they may occur, sometimes in epidemic-like form in institutions.

While such infections may occur apart from lactation, the great majority arise during that period, and it is these which will be considered here. The infection is associated with a cracked or sore nipple in probably less than half the cases. In the others it is presumed usually to have passed directly along the milk ducts from the nipple. It may be that infection has been blood-borne in some instances. The *Staphylococcus aureus* is the usual organism found—far less commonly the streptococcus. While the organism may gain access through it, a cracked or sore nipple is of much greater importance in that stasis occurs, because of the mother's inability to allow suckling on account of the pain. The retained milk then provides a suitable medium for the multiplication of organisms.

Cleanliness of the nipples, the avoidance of cracks and sores, their efficient treatment if they occur, and, above all, avoidance of stasis within the breast, then, are all of prime importance in the prevention of conditions which, if rarely dangerous to the life of the mother, are productive of much pain and discomfort, are a source of keen disappointment, and may have lasting effects on the health of the child. Efficient prophylaxis requires unremitting care on the part of the mother, the nurse, and the medical attendant.

Care of the Breasts in Pregnancy and During Lactation

Obstetricians are divided in opinion on the need for active treatment of normal nipples in preparation for pregnancy. Some consider that any such treatment is useless; others advise that in the last few weeks the mother should draw them out and cleanse them with soap and water twice daily, and massage them between thumb and forefinger with a little lubricant such as lanolin. The fashion of hardening the nipples with spirit or spirituous preparations has been falling into disuse as likely to favour the occurrence of cracks. The depressed nipple must of course be drawn out, and it is well treated by the measures related; but if for nothing else than instilling in the mother's mind the need for scrupulous cleanliness which will be required in the puerperium, it seems sensible to advise washing with soap and water twice daily during the last few weeks of pregnancy.

By far the greater number of breast infections occur in the first few weeks after parturition. A drill-like routine in the matter of cleanliness is required, therefore, right from the outset. Before feeds the mother should thoroughly cleanse her hands in soap and water, paying particular attention to the finger-nails, which should be kept short. The nipples should be washed with warm boric solution and care taken that neither nightdress nor bedclothes touch them. After the feed they are again washed with the solution, thoroughly dried, and covered with a piece of sterile gauze or gamgee pad held in position by the breast binder.

Night and morning in these first weeks the nurse should inspect the breasts with a view to the early detection of such conditions as may favour infection, since by their adequate early treatment such may be avoided. Any residual milk after feeds should be expressed manually or by the breast pump. Such a procedure prevents blockage of ducts with consequent future stasis. Again, the appearance of a cracked or sore nipple calls for immediate attention. The application of cold cream or of glycerin and borax in conjunction with the use of a nipple shield usually suffices to heal this condition. If stronger measures are needed, the application of a little friars' balsam effects a cure in most cases. A nipple shield should be employed where there is pain on suckling, whether a lesion be visible or not. Nipple shields should preferably be of the all-rubber type: glass shields tend to constrict the erectile nipple. As has already been said, not only is there the danger of infection passing by means of the crack, but the pain on suckling usually results in inefficient emptying, and therefore even more thorough precautions must be taken to express residual milk. Should the pain be too great to allow of suckling even with a nipple shield, direct feeding from that breast should be temporarily suspended, the milk being removed by manual expression by the mother and fed to the child through a bottle. Later, direct feeding is resumed.

Occasionally the nurse's inspection will reveal hardened tender nodules in the breast unaccompanied by any great constitutional disturbance. These are probably small areas of retention, and because of the possibility of their becoming foci of infection they require treatment. The breast should be completely emptied after each feed, manually or by breast pump. Light massage, working from the base of the breasts up to the nipple, should follow, the idea being to free any blocked ducts. Between feeds the breast should be supported in a raised position by brassière or bandage.

Acute Engorgement and "Breast Flush"

Two conditions occurring in the early puerperium require mention because of the necessity for differentiating them from acute pyogenic conditions. The physiological milk engorgement of the breast which takes place about the fourth or fifth day may in some patients, particularly elderly primiparae, be so severe in symptoms and signs as to suggest acute inflammation. The breasts are tense and flushed, with pronounced veining, there is a transient rise of temperature and the patient feels "seedy." Relief is afforded by the use of a saline aperient night and morning and the use of a breast pump after the feed; in persistent cases fomentations will help.

About the tenth day there may occur what is known as a "breast flush." This is a sector- or quadrant-shaped

flush of the surface of the breast accompanied by marked constitutional disturbance. The patient often expresses the idea that she is going to have influenza. Starting commonly with a rigor, the temperature reaches 103° to 104° F. The breast is hot rather than tender, and there is no underlying induration of the sector. Most important of all, little breast pain is complained of. "Breast flush" only very rarely passes on to suppuration, and usually subsides in forty-eight hours. It is regarded by some as streptococcal in nature, and by them treated with 15 grains of sulphonamide eight-hourly. By others it is regarded as a local acute engorgement. There is no need to use fomentations, and these conceivably might tend to produce suppuration.

Acute Mastitis

Human breast milk in a proportion of cases contains organisms, not infrequently the *Staphylococcus aureus*. Any condition of stagnation, therefore, will offer a chance of multiplication of these organisms. Such stagnation may occur by the blocking of ducts from inspissated milk. Stagnation, again, may be the result of the inflammation of the wall of a duct or ducts by organisms that have gained entrance by the nipple. A local engorgement is thus the forerunner of an acute mastitis, and there is no clear dividing-line between the two. Severe pain within the breast, often preceded by a shiver or rigor, is the most characteristic early symptom. The breast is tender, locally or diffusely. In the case associated with a cracked nipple a lump is usually palpable early—not always so in other cases. About twelve hours after the onset of pain a cellulitic appearance of the breast, local or diffuse, appears. The temperature is raised and keeps swinging up to about 100° F.

At this stage attempts to aid resolution constitute the line of treatment. The application of heat by antiphlogistine or linseed poultices, leaving the nipple clear, is

The tight figure-of-8 bandage.

helpful and comforting. Any attempt at massage now is contraindicated. The child may still be suckled unless pain be caused, but the breast pump should be employed to extract any more milk possible. Resolution may then be accomplished.

Where the symptoms become more severe in spite of treatment, it is likely that the condition is to pass on to abscess formation. The application of large fomentations should now be employed to aid the process of localization. The vexed question of whether or not to wean the child then arises. There is no doubt that infection subsides much more quickly after weaning, and therefore in severe and moderately severe cases this should be done. There are, at the other extreme, mild cases in which feeding may still be carried on from one or both breasts. If the affected one is not used, the milk is extracted by the breast pump. Each case must be considered on its merits. The mother's milk is the best for the child, and there are economic considerations against its lightly being abandoned. Weaning is satisfactorily accomplished by the use of magnesium sulphate crystals, a tablespoonful each morning in half a glass of warm water, followed by hot tea. There is no need to diminish the intake of fluids. A supporting dressing is applied to the breast. This is well accomplished by a figure-of-8 five-inch calico bandage, running over both breasts but not over the shoulders, put on while the arms are extended above the head. This bandage should be applied so tightly as to make the patient complain of slight constriction of the chest (see figure). The amount of magnesium sulphate crystals is gradually diminished. Weaning should thus be satisfactorily accomplished within a week.

Acute Mammary Abscess

Although it is usual to describe three types of acute breast abscess—the subareolar, the intramammary, and the retromammary—the intramammary is by far the commonest and most important. The retromammary form in lactation is almost invariably secondary to a deep intramammary abscess: its importance, apart from lactation, is concerned with its differential diagnosis from abscesses arising in the breast wall. The subareolar abscess is a small superficial collection unrelated to any deep process, and fluctuation and the time for a small incision are early determined.

What is the correct time for incision of an intramammary abscess? There is no doubt that many, possibly the majority, are prematurely incised. The temptation to insert a knife into any cellulitic area seems irresistible to some people. Incisions in the various forms of milk engorgement and acute mastitis are a disappointment to both patient and doctor. This practice, often associated with the making of counter-incisions for so-called dependent drainage, is utterly to be condemned. Not only is further incision likely to be needed later, but by cutting through normal breast tissue in making counter-incisions the infective process at this diffuse stage is allowed to spread further afield. A well-localized acute abscess opened fully by a single incision at a point nearest the surface, whatever its position in the breast, will discharge its contents freely without the need for counter-incision. (The latter should be reserved for the very rare cases which go on to a sort of chronic diffuse suppuration throughout the breast.)

In the determination of the optimum time for incision let it be said that there is little hurry. It is not a matter only of being sure, from the symptoms and signs, that pus is present: pus may be formed at several points in the involved area. Given time, these will coalesce and tend to form an abscess which, although loculated, is only poorly so, and which can be dealt with thoroughly through a single incision. By daily inspection of the breast it will be seen that in the average case the cellulitic appearance of the skin lessens and becomes more circumscribed, in some deep cases practically disappearing. The underlying indurated area gradually becomes more defined

and somewhat spherical in shape. Where the abscess is not situated very deeply the overlying skin begins to become a more pronounced red and to pit on pressure. This—and it may take a week or more—is the time for incision. Left a little longer the pus would burrow through the covering fascia of the breast and point on the surface as the smaller portion of a collar-stud abscess. There is no need to wait for this. Where, however, the abscess is situated deeply, apart from an actual retromammary abscess, the time for incision is not so obvious. The pus, however, tends to gravitate to the apex of the breast, and in time a break in the fascia underneath the corresponding segment of the areola can be felt by the tip of the finger. This is the premonitor of a collar-stud abscess, and an incision at this time will allow complete evacuation.

Incisions into the breast should be radial from the nipple over the swelling. Much has been needlessly written on the subject of planning incisions for cosmetic effect. The ordinary radial incision made at the right time leaves surprisingly little trace. The operation is easily carried out under gas or gas-and-oxygen anaesthesia. The length of the incision will vary in different cases, but it should always be ample. After the abscess has been incised, a finger is introduced and free communication established between the loculi, which, if the proper time has been allowed to elapse, are already communicating. No undue force should be employed in doing this. Stout strands passing across the cavity should not be torn, for within them are intact ducts and blood vessels; and the breasts should not be squeezed roughly. A drain is now introduced. This is best made of soft corrugated rubber dam or rubber glove material. Where the child has been weaned it is not desirable to use rubber tubes (and indeed they should never be necessary), since the figure-of-8 bandage could not be applied tightly enough. This bandage, over gauze and wool, obviates also any need for packing the wound on account of haemorrhage, which, however, should not occur to any alarming extent if the abscess has been opened at the right time. Assuming still that the child has been weaned, this tight bandage should not be moved for forty-eight hours, and subsequent dressings, except in cases with very copious drainage, should be done at the same interval. The glove drain is removed at the first dressing. Irrigation with antiseptics is unnecessary. When the child has not been weaned and the condition does not clear up readily, weaning is usually followed by rapid cure.

After constitutional symptoms have abated the patient should be kept in bed until progressive healing is taking place. Ambulatory treatment, except in the mildest of cases, is unsatisfactory and prolongs convalescence.

There are rare forms of acute pyogenic infection in which either the whole breast becomes the seat of diffuse suppuration or there is a slow-spreading cellulitis which keeps breaking down at various points. Such conditions require the full scope of hospital treatment, and need not be considered here.

O. W. H. Mitchell, T. L. Bryant, and O. D. Chapman (*N.Y. St. J. Med.*, 1938, **38**, 1022) record 135 cases of gas gangrene which occurred in New York State, exclusive of New York City, in the years 1932 to 1936 inclusive. The predisposing factors were as follows: trauma ninety-one, clean amputations thirteen, pregnancy seven, gunshot wounds five, and miscellaneous nineteen. Eighty-four patients were treated with specific serum (*perfringens* antitoxin) with twenty-nine deaths, and fifty-one without serum with thirty-five deaths.

GROUP PSYCHOLOGY AND SOCIAL POLICY

[FROM A CORRESPONDENT]

The era which has seen the greatest advances in medicine has witnessed two highly significant social trends. In economic life the old cohesion of groups has broken down, leading to more individualistic behaviour and greater mobility of labour. At the same time, medicine has learnt to serve the individual by studying the needs of the group to which he belongs. Both tendencies have worked to form a somewhat impersonal attitude towards the motivations behind social life. No one will deny that man is wise to seek the highest economic status open to him or that money is an urgent incentive, but there is something more. Professor E. P. Cathcart recently referred to "malnutrition of the spirit." This is no sentimental evasion but rather a profound and neglected truth.

"There is a social motive in economic activity so that routine which first develops as a technical convenience grows into stable custom and becomes shot through with sentiment." These sentiments have been analysed by Professor T. North Whitehead of Harvard,[1] and the conclusions he reaches are of considerable importance at a time when social and economic custom the world over is literally in the melting-pot. You cannot break up social groupings in factories or industrial areas, you cannot remove skilled men into new environments, and you cannot play fast and loose with the inner disciplines of established forms of life solely for financial or economic ends without grave risk unless a vital prophylaxis is established. There must be a new form of emotional satisfaction ready to take the strain the moment the old ties are slackened or broken unless there be a continuity of emotional satisfaction over and above these. Medicine, which has with such success studied the group needs of man in regard to physical hazards, has failed, however, to take full account of these aspects of group psychology, with a result that much of the individual emotional disturbance of men and women is incompletely diagnosed.

Spiritual and Emotional Unity

Professor Whitehead has much to say on group ways and sentiments, and though it is addressed mainly to industrial administrators it would be well if doctors and statesmen paid heed to his advice. He makes it clear that a financial and an emotional incentive are necessary for healthy and effective work, and that it is no use strengthening the former at the expense of the latter unless we wish to produce serious imbalance and breakdown in social and economic life. It is no secret that democracy has given such rein to free economic development that the financial aspect of industrial life has run away with itself, and that, whether we like it or not, certain other forms of government have concentrated on giving scope for an overriding emotional outlet which has offset to a large extent the discontents that would otherwise have become manifest. Hence we find our own statesmen suddenly waking up to a realization that some form of spiritual or emotional unity is necessary in this country: something which will hold men and women on their course, despite breaks in their more immediate personal systems; something which will cause them to hope and live for a greater end than that which lies close to them. If this unity is

[1] *Occupational Psychology*. Vol. xii, No. 4, Autumn, 1938. National Institute of Industrial Psychology, Aldwych House, London, W.C.2. 5s.

to be attained by mass hysteria, war preparedness, or fear it may last for a time, but the reaction will be terrible. We have not got a deep slough of despond as formerly existed in Germany, a sense of national inferiority such as preceded Mussolini in Italy, or a vast social chaos as in post-war Russia, to act as the spur to effort or as the focus of emotion. Our problem is more complex. With a relatively high standard of living, a great degree of personal freedom both to serve and to exploit, and a sense of greatness as a people, we find also a disillusionment regarding the use we have made of our opportunities, a bewilderment at the blots on the fitness of large sections of our people, and a realization that too many people are playing with the tokens of life and too few concentrating on the supply of real satisfactions. What spirit can we create to unify our people without loss of individuality, to vitalize all our social services, to give scope and satisfaction to the young, and to guide our relations abroad in the light of biological truth?

National Health and Fitness

We shall not raise our standard of health and fitness by the methods of the recruiting sergeant or by emotional appeals which ignore realities. The only method, and it is to be hoped our statesmen will realize it, is to stop financial exploitation, to produce goods and to supply services because they are needed and not solely for profit, to suppress waste of life and labour, and to let youth see that their welfare is the prime concern of the State, that their labour is used for the welfare of the whole, and that their basic physical and mental needs are going to be met at all costs. Remembering that rights and duties coexist, they will in return be expected to give of their best; but before the demands are made we must know why we make them and see that our policy at home and abroad is directed biologically in such a way that sectional interests shall not under any guise be allowed to divert national aims from the goal of a happy, peaceful, and productive world.

THE STATE OF THE PUBLIC HEALTH

SIR ARTHUR MacNALTY'S REPORT

The nineteenth Annual Report of the Chief Medical Officer of the Ministry of Health, Sir Arthur MacNalty, for the year 1937 was published on October 31.* It is a composite document, the work of many hands, and gives an account of the main aspects of the work undertaken by the seven sections into which the Medical Department is subdivided.

Specialist Services and Health

The report opens with a review of specialist services in their relation to the public health. An account is given of the historical development of specialism in England, the present provision of specialist services by local authorities and at voluntary hospitals is reviewed, and the need for co-ordination and integration of the existing services stressed. Consideration is also given to developments which could reasonably be undertaken by local authorities, with the aid of voluntary hospitals, to provide more specialist advice and treatment in the areas for which they are responsible. Finally, it is claimed that, in spite of the present financial stringency, "much of this co-ordination, integration, and development could be effected by wise administration and good will with little expenditure of public money."

* H.M. Stationery Office, price 3s. 6d.

Vital Statistics

Last year there was a rise of 5,265 births over the number registered in 1936, representing a birth rate of 14.9 per 1,000 living—a slight improvement on the rate of 14.8 for 1936. It is 0.5 above the rate for 1933, which was the lowest recorded, though it is only 0.1 above that for 1934. The infant mortality rate is 58 per 1,000 births, as against 59 for 1936, though it is still one point higher than the exceptionally low figure of 57 reached in 1935. The deaths in 1937 were 509,574, compared with 495,764 in 1936, an increase of 13,810. The five principal killing diseases remain the same as for many years past and occur in the same order:

(1) Diseases of the heart and circulatory system.
(2) Cancer—malignant disease.
(3) Bronchitis, pneumonia, and other respiratory diseases.
(4) Diseases of the nervous system.
(5) All forms of tuberculosis.

If, however, the diseases are rearranged to show the principal killing diseases operating during the years of working life—15 to 65—then tuberculosis takes the third place instead of the fifth and diseases of the nervous system occupy the fifth place. The chapter includes statistical reviews of the trend of mortality in childhood and in old age.

Maternity and Child Welfare

The maternal mortality rate per 1,000 total births continues to fall, being 3.13, compared with 3.65 for 1936, 3.94 for 1935, and 4.41 for 1934. Puerperal sepsis accounted for 0.94 per 1,000, leaving 2.19 for other causes. The rates from both puerperal sepsis and other puerperal causes have shared in the fall, but in each year the greater reduction has been in the rate for puerperal sepsis. The rate expressed per 1,000 live births which admits of comparison with each year from 1911, when the present classification was introduced, was 3.26 in 1937, and is the lowest rate recorded during that period of twenty-seven years. The following table extracted from the tabular maternal mortality statistics shows year by year the maternal death rates per 1,000 total births (live and still births) from the year 1928, when stillbirths first became registrable.

Year	Puerperal Sepsis	Other Puerperal Causes	Total Puerperal Mortality	Non-puerperal Causes	Total Maternal Mortality
1928	1.72	2.52	4.25	1.15	5.39
1929	1.73	2.43	4.16	1.43	5.59
1930	1.84	2.38	4.22	1.14	5.36
1931	1.59	2.35	3.95	1.38	5.32
1932	1.55	2.49	4.04	1.11	5.15
1933	1.75	2.57	4.32	1.37	5.69
1934	1.95	2.47	4.41	1.20	5.61
1935	1.61	2.32	3.94	1.14	5.08
1936	1.34	2.31	3.65	1.06	4.71
1937	0.94	2.19	3.13	1.19	4.32

A summary is given of confidential reports on individual maternal deaths. The Interdepartmental Committee set up by the Minister of Health and the Home Secretary to inquire into the prevalence of abortion and prevention of deaths from this cause is still deliberating. An account is given of the progress of schemes under the Midwives Act, 1936, and of the Rules now framed by the Central Midwives Board under Section 7 (1) of this Act.

Among other matters dealt with in this chapter of the report may be mentioned investigations into puerperal sepsis, recent research on the treatment of puerperal fever by sulphanilamide, and an account of child welfare

activities. Increasing difficulties in meeting the demand for trained nurses and allegations of unsatisfactory conditions of service, etc., led the Minister of Health and the President of the Board of Education to set up an Interdepartmental Committee on the Nursing Services to investigate this important and complicated problem. The chapter ends with an account of the maternity and child welfare services in Wales.

Epidemic Diseases

On a general review there has been a decline in the incidence of encephalitis lethargica and scarlet fever, and a slight decrease in both the incidence of enteric fever and the number of deaths from the disease, though both these figures are appreciably higher than in 1935. For the comparatively small decline in enteric fever incidence and fatality the outbreaks of typhoid at Croydon and paratyphoid at Liverpool, Bootle, and the surrounding district are mainly responsible. On the other hand there has been a rise in the incidence of cerebrospinal fever, diphtheria, dysentery, acute influenzal pneumonia, acute poliomyelitis, and acute polio-encephalitis. In respect of these and some other infectious diseases further details are as follows:

Scarlet Fever and Other Streptococcal Infections.—In 1937 there were 95,737 notifications of scarlet fever with 349 deaths, as against 104,862 notifications and 495 deaths in 1936.

Enteric Fever.—During the year there were (including paratyphoid fever) 2,151 notifications with 206 deaths—a mortality of 9.6 per cent. For 1936 the corresponding figures were 2,490 with 257 deaths and for 1935 1,750 cases with 174 deaths. An account is given of the Liverpool and Croydon outbreaks.

Influenza.—The total number of influenzal deaths was 18,635, of which a large proportion occurred, as is usual, in the first quarter of the year. The heavy death roll was, however, due to excessive prevalence and not to any increase of virulence in the type of the infection. The point is made that remarkable waves of notified pneumonia have followed upon modern epidemics of influenza, and these waves have neither been accompanied nor followed by serious mortality from influenza. This phenomenon accompanied the epidemic of 1937.

Diphtheria.—Of this disease 61,339 cases were notified, with 2,963 deaths—a fatality rate of 4.8 per cent.—as compared with 57,795 cases in 1936 and a fatality rate of 5.3 per cent.

Other Epidemic Diseases.—In 1937 there were notified 4 cases of small-pox—3 variola major and 1 variola minor. There were no deaths. The notifications for the three preceding years were 12, 1, and 179 respectively. Five cases of post-vaccinal encephalitis were reported in 1937 and there were five in 1936. The number of cases of dysentery notified during 1937 was 4,167, as against 1,333 in 1936. A proportion of the increase is believed to be due to better diagnosis and more care in notification of the Sonne type, but a completely satisfactory explanation is lacking. The number of deaths from whooping-cough was 1,750, as compared with 2,090 in the preceding year. The evidence as to the value of vaccines in this disease is conflicting. A substantial rise in the incidence of poliomyelitis and polio-encephalitis occurred in 1937, but the fall in the notifications of encephalitis lethargica continues. The notifications of cerebrospinal fever have again increased a little over those for 1936, the figures being 1,140 and 994 respectively. Though the incidence has not decreased, yet the total number of deaths from puerperal sepsis and puerperal pyrexia shows a notable decline from 843 in 1936 to 596 in 1937. Three suspected cases of psittacosis were reported to the Ministry in 1937, but one was finally shown to be due to another cause, and the diagnosis of the other two remains in some doubt. No case of malaria acquired in England and Wales was recorded during the year.

The Insurance Medical Service

Two important innovations were made during 1937. The first was that the medical benefits of national health insurance were extended to cover all young persons over the school-leaving age who become insurably employed, thus closing the gap which had existed between the medical supervision afforded by the School Medical Service and that available under the Insurance Medical Service, which hitherto only became effective in the case of persons of 16 years of age and upwards. The second was a great extension of the scheme of postgraduate courses for medical practitioners. Under this larger scheme, which will apply to practitioners irrespective of where they practise, it is intended that they shall be able to obtain a free course once in every five years. Within specified limits, not only will the course fee be paid, but also travelling and subsistence costs and the cost of a whole-time locumtenent where one is required.

In 1937 the number of insured persons entitled to medical benefit in England and Wales was 17,032,000 and the number of insurance practitioners was 16,800—increases of 712,000 and 50 on the previous year. The total cost of medical benefit, exclusive of cost of administration, was £10,436,000, of which £7,914,400 represented the doctors' remuneration and £2,521,600 the cost of medicines and appliances. The sum of £2,448,000 was expended from the disposable surplus of approved societies for additional treatment benefits in 1937 in England alone, of which additional benefits the most important are dental and ophthalmic benefits.

Water Supplies and Disease

This country has long enjoyed relative immunity from serious outbreaks of water-borne disease. An account of the outbreaks which have occurred since 1911 emphasizes the serious responsibility which rests upon the various authorities concerned and the need for maintaining the utmost vigilance to prevent any breakdown in the defences. Stress is laid upon the necessity for protecting water supplies derived from chalk or similarly fissured strata, especially in areas where building in the vicinity of waterworks has increased since the time when the wells were originally sunk. Advice is given respecting the measures desirable to attain and safeguard the purity of supply.

(To be concluded)

CONGRESS OF COMPARATIVE PATHOLOGY, ROME, MAY, 1939

The fourth International Congress of Comparative Pathology, which is to be held in Rome from May 15 to 20, 1939, promises to be of special interest. Professor Rondoni, Member of the Royal Academy of Italy and Director of the Cancer Institute at the University of Milan, will be the President, and already about twenty rapporteurs have been chosen for the following subjects:

(*a*) Ultravirus diseases.
(*b*) Heredity in pathology.
(*c*) The association of antigens and their function.
(*d*) Regressive processes in plants.

The British rapporteurs include Professor F. A. E. Crew on heredity in pathology, and Professor J. R. Marrack on antigens. The Congress Committee will be glad to receive shorter communications on any of the above-named subjects not later than March 31, 1939. The Secretary of the Congress is Professor Zavagli, to whom such communications should be sent, addressing them to him at Consiglio Nazionale delle Ricerche, Piazzale delle Scienze, Rome.

The membership subscription is 250 lire, or in English money £2 12s. 6d. This subscription gives the right to reduced rates granted by the railways, shipping companies, and hotels; to participate in all excursions and ceremonies, including the banquet, and to receive the general reports of the Congress. The ladies' subscription is 100 lire (£1 1s.). Subscriptions may be sent to the Secretary of the British National Committee, Dr. Fred Bullock, at 9, Red Lion Square, London, W.C.1, who will undertake to pass them on to the Secretary in Rome. The last date for the reception of subscriptions by the Rome Secretariat is March 31, 1939.

EXTENSION OF INCOME TAX ALLOWANCE FOR CHILDREN

It is a matter of common knowledge that though the allowance for a child normally ceases when the child attains the age of 16, it is continued while the "child" receives whole-time instruction at a recognized educational establishment. This usually covers the case of a "child" who is receiving training at a hospital, but hitherto has not applied to training as an articled pupil or an apprentice. During one of the later stages of this year's Finance Bill, however, the Chancellor of the Exchequer added another concession, intended primarily, it would seem, to meet the case of an apprentice, but in fact having a somewhat wider scope. The concession is embodied in Section 20 of the Finance Act, 1938, and the possibility of relief under that provision might well be borne in mind in connexion with the notices of assessment to tax which are now reaching the hands of our readers.

The old relief is now extended to include "a child undergoing training by any person for any trade, profession, or vocation," but this extension is subject to two conditions. The first is that the child is required to devote the whole of his time to the training for a period of not less than two years, and the other is that during the period of training the emoluments of the child do not exceed £13 a year. There is provision for setting off the amount of the premium paid in respect of the training from the emoluments payable by the employer. The net effect is to give the child allowance in cases where the ordinary education has ceased and the child is receiving technical training under apprenticeship indentures or articles—for example, as an articled clerk to a solicitor or accountant. As the allowance represents tax on £60—that is, £16 10s. at the present standard rate of 5s. 6d. in the £—the relief is not insubstantial. Medical practitioners who have a child coming within the extended relief should communicate with the local Inspector of Taxes requesting him to supply them with the appropriate form of claim.

RESEARCH FELLOWSHIPS IN TROPICAL MEDICINE

The Medical Research Council, on the advice of its Tropical Medical Research Committee, has awarded the following Junior Fellowships:

SCOTT GLADSTONE COWPER, B.Sc., Ph.D., M.R.C.S., L.R.C.P.

ALEXANDER JOHN HADDOW, M.B., B.Sc.

WILLIAM HEPBURN RUSSELL LUMSDEN, M.B., B.Sc.

These Fellowships are tenable for three years, during the first two of which the holders will undergo training in this country in tropical medicine and in the use of research methods.

The Premio Alvarenga do Piauhy (Brazil) Prize for 1939, about 200 dollars, will be conferred by the College of Physicians of Philadelphia on July 14, 1939, upon the author either of the best memorial or of the best unpublished essay on any branch of medicine which may be deemed worthy of the prize. In selecting the winner of the award the committee will consider recent publications brought to its attention prior to May 1, 1939; also unpublished typewritten manuscripts submitted before that date. Manuscripts not in English must be accompanied by a translation in English. Communications should be addressed to the Alvarenga Prize Committee, 19, South Twenty-second Street, Philadelphia, Pennsylvania, U.S.A.

Reports of Societies

UTERINE INERTIA

Blair-Bell Memorial Lecture

Among the benefactions of which the British College of Obstetricians and Gynaecologists became possessed under the will of its first President, the late Professor Blair-Bell, was the foundation of a lectureship. The first William Blair-Bell Lecture was delivered at the College on October 28 by Mr. T. M. A. JEFFCOATE of Liverpool, who took as his subject uterine inertia.

Mr. Jeffcoate said that the subject of uterine inertia was one in which Blair-Bell himself was particularly interested. His views were at variance with those of most of the obstetricians of his period, but they were now coming to be more and more accepted, although in a modified form. Blair-Bell considered that uterine inertia, whether primary or secondary, was for the most part caused by a deficiency of pressor substances in the blood stream. Later he included oestrogenic substances with the pressor substances.

A study of the treatment of uterine inertia demanded a knowledge of the normal physiology of the uterus and of the factors which ordinarily controlled it. The oestrogenic hormones had a share in the control of its contractions, passivity, and tone. As pregnancy advanced the amount of oestrogenic hormone in the circulation increased, and during the period immediately preceding labour it became activated and free to exert its full biological effect. When the uterus was fully sensitized by the oestrogenic hormone any minor stimulus might be sufficient to cause the onset of labour. It was logical to assume that the factors bringing about expulsive contractions were of assistance also during labour itself. The nature of the uterine contraction and the progress of cervical dilatation were largely dependent upon the relation between the passages and the "passenger." Endogenous factors were a first concern in the preparation of the uterus during pregnancy and also for the onset and maintenance of the expulsive uterine contractions, and here the oestrogenic hormone was of great importance. In animals this hormone was the only substance known that would stimulate an inactive uterus.

A Clinical Investigation

In view of these considerations it was decided to carry out a clinical investigation of patients treated for inertia with oestrogenic hormones. Emotional disturbances were often concerned in the aetiology of inertia, and any method of treatment might improve uterine action solely by means of its psychological effect. It was therefore always difficult to assess the results and difficult also to ascertain in all cases the exact time of onset of labour. In this trial, however, the utmost precautions were taken, only cases of inertia of long standing and characterized by complete or almost complete cessation of pains being selected. Only eighty-eight cases suitable for treatment were encountered in a series of many hundreds of confinements, and the duration of uterine contractions and the interval between them were charted before, during, and after treatment. Various oestrogenic hormone preparations were employed, but mostly oestrone benzoate in 2 mg. doses in an oily medium. This was administered intramuscularly and, with few exceptions, at one-hour intervals, continuing for eight to ten hours unless delivery was completed before the end of that time. The results are shown in the table on the next page.

There were sixty-seven primary cases, thirty of them complicated and thirty-seven uncomplicated; twenty-one secondary cases, seven of them complicated and fourteen uncomplicated; and successful results were reported in fifty. The mechanical fault with which inertia was com-

plicated was in twenty-two of the thirty-seven cases malposition or malrotation of the head. Among the successful cases nineteen had instrumental delivery and four Caesarean section, the other twenty-seven being delivered by natural forces. Of the cases in which treatment was unsuccessful, eighteen had instrumental delivery and five Caesarean section.

Results of Treatment of Uterine Inertia by Oestrogenic Hormones

	Successful			Unsuccessful		Doubtful	Percentage of Successful Cases
	Very Good	Good	Fairly Good	Slight Response	No Response		
Primary:							
Complicated by mechanical fault ..	1	3	6	8	12	—	33.3
Uncomplicated ..	20	5	4	2	2	4	78.4
Secondary:							
Complicated by mechanical fault ..	—	—	2	—	5	—	28.5
Uncomplicated ..	7	1	1	—	5	—	64.3
Total	28	9	13	10	24	4	56.8

The cases required further analysis from the point of view of the aetiology of the inertia. There was no theoretical or practical reason for regarding primary and secondary inertia as separate clinical entities, and it was often impossible in practice to say whether the inertia was primary or secondary. As alternative terms the first stage and second stage of labour were preferable. Of the eighty-eight cases, seventy-four showed inertia in the first stage, and forty-two successful results were achieved; fourteen showed inertia in the second stage, with eight successful results.

The response to oestrogenic treatment bore no relation to the time of onset of inertia, nor to the stage of labour at which the treatment was started. This offered further support to the belief that inertia was a single clinical entity, though it might make its appearance at different stages in parturition. It seemed permissible to state that the treatment was free from risk to either mother or child. In some of the later cases tests were made using an aqueous rather than an oily medium, but the results showed very little difference.

Prophylactic Treatment

Prophylactic treatment had been tried in another series of fifty-one patients in all of whom some abnormality was present or there was a definite reason for supposing that labour would be difficult. In these cases 2 mg. of the hormone substance was injected at intervals of from one to twelve hours for periods of from one to twenty-one days before delivery. The best results followed administration at eight- or twelve-hourly intervals for four days or longer. Of these fifty-one patients only three developed inertia in labour. The average duration of the labour in the twenty-one primigravidae was 15.6 hours, and in the multiparae 9.7 hours, leaving out of account six cases in which the duration of labour was unknown. There were four instrumental deliveries in this series and two Caesarean sections.

One deduction from this work was that it was the middle-aged woman with a large family, however much burdened by domestic cares, who had usually the uncomplicated and easy labour, and the primigravidae who were particularly the subjects of inertia, especially those over the age of 30. Again, it was the athletic woman rather than the effeminate who was likely to have disordered uterine action.

Twin Pregnancies

He had also investigated 100 cases of twin pregnancy—forty-four primigravidae and fifty-six multiparae. The average duration of labour was well within normal limits, as the following table showed:

Average Duration of Labour

	First Stage Hours	Second Stage Hours	Total Duration Hours
Primigravidae ..	12.3	2.5	15.1
Multiparae	7.8	1.1	9.1

Five of the original eighty-eight cases were also of multiple pregnancy. Thus the conception that overdistension of the uterus did not directly produce inertia was borne out.

It would be wrong, Mr. Jeffcoate concluded, to omit reference to emotional factors, of which fear was the most important. Emotional causes were as far as possible excluded from the series under discussion, but he did not wish to diminish the importance of administering morphine and other sedatives. Inertia was a wide subject, and it had been necessary to confine the lecture to a few of its aspects. He was of opinion that oestrogenic hormones should be used where the uterine inertia was not improved by sedatives and anti-spasmodics. They served to regulate and co-ordinate the uterine contractions. The endocrinological viewpoint of uterine inertia was intriguing and one in which investigation had only just started, but it was clearly not the only important aspect of the subject, the mechanical relationship being also of considerable account for any patient exhibiting feeble or irregular uterine contractions in labour.

BENZEDRINE: USES AND ABUSES

A combined meeting of the Sections of Medicine and of Therapeutics and Pharmacology of the Royal Society of Medicine was held on October 25, Dr. H. LETHEBY TIDY presiding, for a discussion on benzedrine, its uses and abuses. Dr. Tidy said that benzedrine, a synthetic drug allied chemically to ephedrine, illustrated the new tendency for pharmacological discoveries to have more in them than was originally claimed. In the old days a drug was put upon the market with a thousand indications in the hope that some more or less accurate observer would report success in one of them; the process with some recent introductions had been the reverse.

Summary of Recent Experience

Dr. IVOR J. DAVIES (Cardiff Royal Infirmary) opened the discussion by referring to his review of the toxic effects of benzedrine which appeared in the *British Medical Journal* (1937, **2**, 615). In that review he described the case of a student who administered benzedrine to himself (190 mg. in nineteen days) with the idea of equipping himself better for his examination. Severe aplastic anaemia resulted, together with failure in the examination. The student had now recovered and done well. He had informed him that the drug was a good deal used by students in these circumstances.

Dr. Davies went on to say that since the publication of that review he had had no further personal experiences, and could only comment on the physical effects observed recently by others. He referred to the work of Gwynn and Yater, who had studied the immediate effects of benzedrine sulphate in therapeutic doses on a large number of students, and who concluded that the use of the drug might be permitted or even prescribed for normal persons suffering from lack of self-confidence or mild depression who deemed it advisable to overcome these drawbacks temporarily, but they emphasized that such use of the drug should only be an emergency measure. The same workers considered that the drug was not habit-forming. Hill of the R.M.S. *Aquitania* had studied 100 cases of sea-sickness treated with benzedrine alone or combined with other remedies, and concluded that the drug had great possibilities of usefulness in certain cases of sea-sickness in which there were signs of excessive vague activity.

Boyd and others had studied the use of the drug in the relief of the common cold. It was found to relieve the symptoms resulting from nasal turgescence, but not to shorten the cold's duration. Davidoff and Reifenstein, in studying some of the physiological effects of benzedrine sulphate, found them to be "variable, uncertain, unpredictable, and at times paradoxical." Dettrick and others had studied the stimulant effect of the drug on the central nervous system, and Rosenberg had described its effects on the gastro-intestinal tract and its limitations in the treatment of the spastic colon. Of eighteen cases of spastic colon, three improved, one showed improvement followed by relapse, eleven were not improved, and three were made worse.

From January 1, 1939, the drug would be placed in the First Schedule of the Poisons Act. With all due respect to the Home Office and its advisers, he thought it should have been placed in the Fourth Schedule. Under the First Schedule, it was true, it could be obtained only by a doctor's prescription, but it could be repeated on the same prescription, whereas under the Fourth Schedule it could only be dispensed once.

Psychological Effects of Benzedrine

Dr. E. GUTTMANN (Maudsley Hospital) also referred and added to the paper he, with W. Sargant, had contributed to the *British Medical Journal* (1937, **1**, 1013). With regard to the effect of benzedrine on normal individuals, the difficulty was for the psychiatric inquirer to find such normals among the people with whom he commonly had to do. One psychological effect following the use of the drug with normal people was an alteration in the sense of time. The subjects said that time passed more quickly; the same time intervals when repeated seemed to be shorter. There was no evidence of sexual excitation. The effect of a single dose usually passed off within a day. The effects observed from continued administration of small doses were of the same kind, but of gradually weakened intensity. Myerson and his co-workers in the United States had reported no improvement under benzedrine in the cases in their psychiatric clinic, and said that fifteen out of eighty cases showed temporary accentuation of the psychosis. It was now generally agreed that benzedrine did not improve schizophrenic psychosis, also that severe depression and depressive stupors did not benefit, small doses having little or no effect, while large doses produced anxiety or untoward physical symptoms. The drug seemed to produce its best effects at the end of a depressive attack. He agreed with Myerson that the psychological effects with benzedrine were best produced by small doses. In most cases 2.5 mg., given two or three times during the morning, would yield better results than one large dose. The difficult cases were those of psychasthenia, seen in the type of person easily fatigued or exhausted. Addiction was rare. He had come across only one case of possible addiction, and he doubted whether that could properly be so described. It was the case of a woman who had taken 10 to 25 mg. daily for several months. At first she was so stimulated that her well-doing at work aroused the jealousy of her workmates, but toxic effects presently appeared. On coming to Maudsley she gave up the drug without much trouble, did not describe any deprivation symptoms, and never made an attempt to get a fresh supply.

Pharmacological Aspects

Dr. J. W. TREVAN said that benzedrine might be regarded as a derivative of the ephedrine series, norephedrine differing from benzedrine in the replacement of a carbon atom in the side-chain of benzedrine by a hydroxyl group. In the form in clinical use it was a racemic mixture of *d*- and *l*-phenylisopropylamine, the end carbon atom being asymmetrically combined. It was first introduced for its vasoconstricting effect on the nasal mucosa. In animals it produced a rise in blood pressure which was about the same as that produced by phenylethylamine, and, as with ephedrine, repetition of the dose produced a smaller effect. Doses of 50 mg. by mouth were followed by a rise of arterial blood pressure, which might last for some hours. It caused contraction of smooth muscle. Its action was not sympathomimetic, as its activity was not reversed by ergotoxin. It was extremely active in awakening animals from anaesthetic sleep; at least as active as coramine but less active than cardiazol or picrotoxin, but, unlike these, it did not at any dose produce clonic convulsions. It produced, however, a great increase in voluntary motor activity in mice. The experimental mice on recovering from the anaesthetic sleep showed perfectly co-ordinated motor activity, but carried out at something like twice the normal rate. When resolved the *d*-form was considerably more active than the *l*-form. Substitution of one hydrogen atom in the amino group by a methyl group increased the analeptic action in mice; substitution of both hydrogen atoms in the amino group destroyed this action. The determination of the analeptic activity of a drug as judged by the usual methods was very crude, but it seemed clear that the benzedrine group and the picrotoxin group acted by influencing different parts of the central nervous system, and it was possible that the awakening was brought about by the mediation of nervous stimuli originating for the benzedrine group in the cerebrum and for the picrotoxin group somewhere in the neighbourhood of the red nucleus. Where the stimuli originated for the ephedrines he could not say. Dr. RICHTER added a few words on the pharmacological properties of these amines of the benzedrine and ephedrine series. Instead of acid appearing in the urine the amine appeared to come out unchanged. Ephedrine was excreted a good deal faster than its fellow.

Addiction

Dr. G. RUDOLF said that he had used benzedrine in some fifty cases of mild depression, and it struck him quite forcibly that the patients who benefited most were those who were depressed in the early part of the day. If the patient were asked, "Are you depressed in the morning or evening?"—carefully accentuating the words "or evening"—and it was found that the depression was usually in the morning, benzedrine in almost every case brought about improvement. But it was necessary to start with small doses. The experience of one who had never previously taken the drug was that with 2.5 mg. he felt improved, but with 5 mg. he felt "drunk," though actually he walked straight. Dr. Rudolf knew one doctor who used the inhaler for a cold, applying it about once an hour, and remained awake all night reading Shakespeare's dramas, which next morning he was able to remember with surprising accuracy.

Dr. A. P. CAWADIAS mentioned the case of a young man who for years had felt rather tired and sleepy. He consulted three years ago a distinguished neurologist, who told him that his sleepiness was due to Raynaud's disease and put him on benzedrine. During the last two years he had taken 40 mg. of benzedrine every day, and showed very distinct symptoms of mental depression. But he declared that with 20 mg. he could not get on, whereas with 40 mg. he was able to do so. Was not that a form of addiction?

Dr. E. R. CULLINAN mentioned the case of a woman aged 60 with considerable coronary disease who had been taking 10 mg. twice a day for ten months. The longer she took it the greater was her depression when she left off taking it, but she did not require a larger dose to produce the effect at the end than she had done at the beginning. He also mentioned a child of 3½ years who had chewed a benzedrine inhaler left in the nursery and afterwards chattered incessantly for eighteen hours.

Dr. IVOR DAVIES, in replying on the discussion, said that he believed, though the substance had a wide use in psychiatric medicine, the only accredited indication for it

in general medicine was Parkinsonism. The dose in Parkinsonism was raised to as much as 20 mg., and it might be combined with the ordinary remedies.

CLEFT-LIP AND CLEFT-PALATE

At a meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on October 14, with Mr. A. A. McCONNELL in the chair, the president, Mr. WILLIAM DOOLIN, delivered an address on congenital clefts of the lip and palate.

Mr. Doolin said the usual incidence of congenital defects of this kind would appear to be about one in rather less than 1,000 births; at this rate some fifty to sixty cases a year should be met with in the hospitals of Ireland. His own experience consisted of 196 cases seen in six years, 122 of which were clefts of the lip. The cases were grouped according to Veau's classification: simple unilateral (cleft of lip only without cleft of alveolus or palate), forty cases; total unilateral (cleft of lip, alveolus, and palate), sixty-eight cases; simple bilateral, two cases; total bilateral, twelve cases. In the case of the simple cleft-lip, the operator's task was to provide an effective closure of the interrupted oral sphincter within its muco-cutaneous envelope. Elaborate cosmetic efforts were not to be encouraged. In the total unilateral cleft the surgeon had a triple objective—closure of the nasal floor, closure of the lip defect, and reconstruction of the nostril. The bilateral cleft lip was best treated by a two-stage operation, each side being closed separately with an interval of three or four months between the two stages; the remaining cleft in the soft palate was best closed in the second half of the second year. There was a definite mortality attached to these operative procedures: in 107 operations for closure of unilateral clefts five deaths had occurred—two from post-operative hyperpyrexia, two from bronchopneumonia, and one from sepsis; in fifteen closures of bilateral clefts there had been one death, also from hyperpyrexia. This post-operative hyperpyrexia haunted all operative procedures on infants; its aetiology was unknown and its treatment purely empirical.

Local News

ENGLAND AND WALES

Obstetricians and Gynaecologists: College Dinner in London

The eighth dinner of the British College of Obstetricians and Gynaecologists was held at Claridge's on October 28, with the President, Sir Ewen Maclean, in the chair. Beside him were the President of the Royal College of Physicians of London (Dr. Robert Hutchison), the President of the Royal College of Surgeons of England (Mr. Hugh Lett), the President of the British Medical Association (Dr. Colin Lindsay), and the Secretary of the Ministry of Health (Sir George Chrystal). The guests, who included many ladies, were received by Sir Ewen Maclean and Miss Maclean. After the loyal toast had been honoured the health of "The College" was proposed by Dr. Robert Hutchison, who said that the early disapproval of the Royal College of Physicians at the birth of the College of Obstetricians and Gynaecologists had not perhaps been a disadvantage. The new College had flourished and justified its existence as a focus of information on all public matters relating to the twin subjects with which it was concerned. In his reply Sir Ewen Maclean spoke of the bonds of common interest between the Colleges, old and new, and recalled how Dr. Herbert Spencer in his Harveian Oration had brought out Harvey's contribution to obstetrics. He himself was now at the end of three years' presidency, and his gratitude to the officials was as great as the gratitude he felt when quitting the presidency of the British Medical Association. Reviewing the present position of the College he noted that it now numbered 800 Fellows, Members, and diplomates, 231 of these living over-seas. In its efforts to raise the standard of midwifery practice throughout the British Empire it was consulted by great public bodies such as the Ministry of Health and the L.C.C. Sir Ewen Maclean ended with a tribute to the late Sir Robert Johnstone, a reference to Mr. Jeffcoate's Blair-Bell memorial lecture, of which a report appears this week at page 959, and a welcome to his successor in the presidential chair, Professor Fletcher Shaw, and to Professor Shaw's successor as honorary secretary, Mr. G. F. Gibberd. The toast of "The Guests" was proposed in a felicitous speech (which he called a "joint indictment") by Professor Daniel Dougal. Mr. Hugh Lett as first responder, in the absence of Lord Horder, made sympathetic reference to the history of the British College of Obstetricians and its fine ideal for improvement of the standard of midwifery. The Cinderella of ten years ago had now grown up; she had a home of her own and a lovely gown. The toast was also responded to by Mr. Norman Birkett, K.C., who, in an amusing speech, said that nowadays it was a rare experience for him to follow a "leader." Ending on a serious note Mr. Birkett declared that the co-operation of medicine and the law was of the greatest importance to the welfare of the State.

Congested Populations

On October 27 Dr. Norman Macfadyen delivered a Chadwick Public Lecture on "The Evils of Congestion and the Way Out." Dr. Macfadyen showed how great cities provided an unsuitable environment for families, and urged the creation of new towns as a means of opening up the big cities and thus providing better environments for the citizens of the too crowded townships. The slums were not merely collections of decrepit insanitary houses; they constituted places where the inefficient members of the population herded together, and poverty, ill-health, crime, vice, drunkenness, discontent, and mental feebleness congregated, producing a stifling atmosphere which tended to standardize undesirably the physical and mental lives of the young. Slums were to be found in every congested area, and rats, flies, bugs, and other unwholesome organisms flourished in them; they produced bad citizens as well as ill-health. Members of the "social problem" group in these areas tended to intermarry and to cluster together. This group cost the nation an enormous annual expenditure on the treatment of disease, both physical and mental, in respect of the police and of courts of law, and in the relief of misery. Its members were not restricted to congested areas, but where the standard of life was higher and the individual citizen had an opportunity of wholesome life there was a much greater chance of dealing with them satisfactorily. It was well known that the dispersal of such groups to better environments, where they could have their own houses and gardens and fresh air to breathe, produced an immediately favourable response in at least 80 per cent. of them. Dr. Macfadyen had found from his own experience that persons rescued from some of the most crowded boroughs in London and brought to Letchworth had changed into good citizens, the children had become healthy and more responsive and alert, influencing their own parents most favourably. Environment had both physical and intellectual aspects, including the nature of the domicile and its surroundings, the parents and the social life around them. The clearance of one small congested area in consequence of tuberculosis had been calculated to amount to a saving of £32,000 in three years. Dr. Macfadyen condemned blocks of flats because they increased the density of the

population on a given area, making the actual congestion worse. Even though, by a great expenditure of money on land, building, and public health services, the conditions of flat-dwellers might be ameliorated, they would not promote health. Flats were unsuitable for healthy family life; they seemed to have been designed for the storage of "hands" for industrial purposes. The congestion in great cities should also be blamed for most of the modern neurosis, which in its turn was responsible for one-third of the disease treated under national insurance. These neurotic conditions caused untold misery, suffering, social disability, and even physical diseases. In respect of the new towns advocated by Dr. Macfadyen, he added that each should be surrounded by an open belt of country, sufficient to demarcate it from other towns and to limit its own size. This open belt should provide the new town with playing fields, open spaces, and agricultural and dairy produce. If possible, the new town and its rural belt should be under a common ownership of the land. The town should be big enough to provide all the functions of an active social life, but it need not try to compete with the amenities of a great city.

Surgical Instrument Makers at Dinner

Surgical instrument makers and their guests met at dinner on October 28 under the chairmanship of Mr. Guy Radcliffe Drew. The health of the Surgical Instrument Manufacturers Association was proposed, in a speech full of historical lore, by Professor R. E. Kelly of Liverpool. He congratulated those engaged in this craft on the guild spirit which they were instilling into their younger members. As the son and brother of cutlers he himself from his earliest years was interested in the shaping of steel tools. Although an enormous number of surgical instruments had been invented, very many of them had enjoyed only a brief period of use, but the simplest instruments used to-day were extraordinarily old. Surgical operations were of great antiquity, none of them could have been done without tools, and the craft of the surgical instrument maker was probably the oldest in existence. At the Royal College of Surgeons there were skulls from Peru dating from the Stone Age showing holes laboriously made. The purpose of the drilling, no doubt, was not for the removal of cerebral tumour, but for the letting out of evil spirits or the letting in of good; the fact remained, however, that craniotomy was done in that early period. In the time of Hippocrates trephines, knives, bone drills, probes, needles, forceps, and bone elevators, among other instruments, were in existence. In the Naples museum, among the instruments which had been found in the doctors' houses of ancient Italy, were rectal speculae. Nor was bronze the only metal used in those days. Years before Hippocrates iron, and he believed steel, were made. A very strong and pure ore was used, and iron was produced by means of charcoal. Many of the "new" inventions, added Professor Kelly, were a good deal older than was supposed. Mr. Radcliffe Drew, in responding to the toast, mentioned that one of the problems of the surgical instrument maker was that he worked for the most part with alloys. It was true that he also worked with gold and a number of other pure metals, but not to any great extent. The properties of alloys were not fixed by their composition. If chromium were mixed with ferrite or carbon the end-result did not depend purely on the percentage of one material or the other, but very much on the temperature at which cooling took place. It was on account of the varying qualities possessed by alloys that the surgical instrument industry had become a rather difficult but also a fascinating business. The first problem was to train the workpeople to handle the material. At least five years was spent by the apprentice in learning to shape materials as required. The technical staffs in their workshops had not only to understand the laws of the material with which they were dealing, but also the exact conditions—environment, pressures, and so forth—under which the material was going to be used. It was on that account that contact between surgical instrument makers and surgeons was necessary. The health of the guests and of the ladies was proposed by Mr. T. M. Proudfoot, and responses were made by Mr. H. S. Souttar and Mr. St. John Buxton. The former mentioned some amusing answers given by students at examinations for diplomas of the Royal College of Surgeons; some of them had a confused idea as to the uses of surgical instruments.

Silver Jubilee of Ruthin Castle

An interesting landmark in the history of clinics, nursing homes, and private hospitals in this country is reached with the celebration this autumn of the silver jubilee of Ruthin Castle in North Wales, the institution of which during the whole of the twenty-five years Sir Edmund I. Spriggs has been senior physician. Actually this clinic has been located at Ruthin only during the last fifteen years. It began its operations at Duff House, Banff, in 1913, when, it is claimed, it was the first institution of its kind in Great Britain. The hospital for private patients with nursing staff was already known, but Duff House had a whole-time salaried medical staff, with what would now be called registered auxiliaries for physical treatment, dietetics, radiography, and so forth, all under one roof. The original suggestion was for a sanatorium for gastric diseases, but the range of work was at once extended to include the scientific investigation and treatment of all diseases except infectious diseases, active pulmonary tuberculosis, and mental and severe nervous disorders. The work was carried on in Scotland for ten years, and then, in response to a desire to be nearer the centres of population, the move was made to Ruthin Castle, which was purchased, together with some five hundred acres of land. Ruthin Castle, overlooking the broad valley of the Clwyd, was one of the great fortresses erected by the first Edward as military bases in Wales. The ruins of the Plantagenet castle are still to be seen, with moat and dungeon complete, but they have been surrounded by another group of buildings of various ages. When the property came into the hands of those responsible for conducting the clinic the older buildings were made only the nucleus of the new hospital, and two new wings containing forty-six rooms for patients, as well as rooms for treatment and administration, were added. During the quarter of a century there have been 12,000 admissions. A special matter of pride to the highly qualified staff which has worked under Sir Edmund Spriggs's direction is the amount of research on various aspects of internal medicine which has been possible under these conditions for the study and treatment of disease; this is illustrated in about one hundred published papers.

Extension at Manor House Orthopaedic Hospital

A new wing, comprising three wards with sixty beds, was opened by Queen Mary at the Manor House Hospital, Golders Green, in North-West London, on October 24. Manor House is an orthopaedic hospital, owned and controlled by a quarter of a million industrial workers, each of whom is entitled to its services on a subscription of one penny a week. Mr. A. V. Alexander, formerly First Lord of the Admiralty, who is the president of the hospital, stated that the opening of the new wing coincided with the coming-of-age of the institution, which was started in 1917 to assist in the care of wounded soldiers The present membership included shipwrights, engineers, printers, transport workers, and men engaged in every form of industry in all parts of the kingdom, but some of the most valued members of the hospital were employers of labour who had given valuable time and thought as well as money for the hospital's welfare. Mr. Alexander also said that, including the clinic for rheumatic patients and the special departments for dental and ophthalmic treatment, the hospital had raised since 1920 for maintenance purposes over £650,000, and nearly 100,000 patients had been treated, 19,000 of them in the wards. In order to complete the main hospital scheme for men it would be necessary to raise nearly £200,000, and it was also desired to extend the services to women. A house near by had

been already purchased for this purpose, and about £20,000 was in hand towards the erection of the first block of women's wards to cost not less than £40,000. Queen Mary declared the hospital open, and after making a tour of the new wing and of an occupied ward in the older part of the hospital, took tea in the quarters of Sir Ambrose Woodall, who has been resident surgeon at the hospital almost since its foundation.

SCOTLAND

Wilkie Research Surgical Laboratory

At the half-yearly meeting on September 28 of the General Council of Edinburgh University, Principal Sir Thomas Holland, who presided, said that as a memorial to the late Sir David Wilkie it had been decided to call the Department of Surgical Research, which was opened last July by the Minister of Health, the Wilkie Research Surgical Laboratory. At that time it had been intimated that the extension of the laboratory had been made possible by the help of a donation from an anonymous friend. He might now announce that the donor had been Sir David Wilkie himself. Parliamentary grants to Scottish universities for the present year, it was stated at the same meeting, amounted to £378,000, representing 41.8 per cent. of the total income, while the grants from local authorities amounted to 4.2 per cent.

Hospital Co-ordination in Edinburgh

Professor L. S. P. Davidson, in his inaugural address on taking up the duties of the chair of medicine at Edinburgh University, advocated a co-ordinated hospital policy. He pointed out that large numbers of beds in the municipal general hospitals were empty, while the Royal Infirmary had a waiting list of 3,000. One reason was that patients entering a municipal hospital had to pay part or all of the cost of maintenance if they were able to do so, while patients entering the Royal Infirmary paid nothing. He saw no objection to the principle that those who could afford to pay should do so, but the method adopted by the local authority of applying this principle was wrong. A hospital policy for the south-east of Scotland should be planned on a regional basis. This, however, presented many difficulties, and meanwhile it might be advisable to concentrate on the problem of a local hospital policy for Edinburgh with its half-million inhabitants. There were some twenty separate hospital governing bodies, but the problem might be simplified if the two main groups of hospitals, voluntary and municipal, were considered. The standard of teaching remained as high as it had ever been, but there was an excess of students undergoing clinical instruction. The local authorities might lighten the load of the voluntary hospitals; every vacant bed in the municipal hospitals might be made available for the care of the sick of Edinburgh who required institutional treatment. Much had been done to improve the municipal hospitals during the past six years, and he believed that the principle of patients contributing to their maintenance should be applied in the voluntary hospitals also. Admission to the municipal hospitals should be under the control of the medical officer of health, not the public assistance department, and the question of recovering the cost of maintenance should be investigated by professional almoners. It would appear, Professor Davidson continued, that a proper solution would be found in the formation of a contributory scheme open to all persons in Edinburgh with an income below a certain level. Subscribers to this would be admitted free to any hospital in the city, while non-subscribers would be questioned by the almoners to decide their ability to contribute to the cost of maintenance. Contributory schemes and organized almoner services had literally saved the voluntary hospitals in England, and the time was coming when the great Scottish institutions would have to follow suit.

Correspondence

Treatment of Poliomyelitis

SIR,—In your leading article on the above subject (October 22, p. 841) you stress as an important result of the investigation into Miss Kenny's work, although having no direct connexion with it, "the great value of collecting cases of poliomyelitis at an early stage of the disease into the wards of a hospital in which they can be subjected to intensive treatment by a team in which medical, surgical, nursing, and physiotherapeutic services are included." Anyone who visits orthopaedic clinics run in connexion with school medical and infant welfare services will hope that this comment may gain the fullest attention in the profession.

In spite of all the light that has been focused on this disease in recent years certain unfortunate tendencies are still apparent. In many hospitals, and not a few teaching hospitals, anterior poliomyelitis in its early stages is regarded as a "medical" condition, with the result that the patient is admitted to a medical ward under the care of persons unaccustomed to orthopaedic problems during the all-important early weeks of the disease. The heavy and largely inefficient plaster splint in which deformity has been allowed to occur (representing, not infrequently, a house-physician's first attempt at plaster work) is still no rarity.

Cases of anterior poliomyelitis—particularly the milder cases—are frequently discharged from hospital—perhaps with instructions to attend a massage department twice a week—very early in the convalescent stage after little or no hospital treatment and with no adequate arrangements for subsequent supervision. Many of these cases ultimately find their way to orthopaedic clinics or outpatient orthopaedic departments, but only too often after valuable weeks or months have been lost, and not infrequently after the patients have developed contractures that should never have been allowed to occur. If only it could become a universal practice for all cases of infantile paralysis to be referred to orthopaedic clinics or outpatient departments having facilities for prolonged hospital treatment for patients requiring it and an efficient follow-up system, not a little of the disabilities which are so often seen as a result of this disease could be prevented.—I am, etc.,

Lord Mayor Treloar Hospital, Alton, Oct. 26. H. H. LANGSTON.

Civil Medical Organization in War

SIR,—The views expressed so clearly by Sir Frederick Menzies on civil medical organization in war (*Journal*, October 22, p. 860) must carry weight seeing that he has been a member of five committees which have come and gone and left little mark behind them. He points out the danger of collecting large numbers of valuable medical personnel under one roof, and although the risk is the same for all, the loss in the case of the medical personnel is much greater. This argument, however, applies anywhere where technical knowledge is gathered together, either in the staffs of armies or the organizing centres of large manufactories, and is one of the risks to be faced in war time. This risk, however, should be cut down to a minimum. The senior students are to be exempted from conscription so as to enable them to help in the hospital where their knowledge is most useful,

and pursue their clinical studies practically, becoming medical officers eventually.

The junior student's position was doubtful; but I hear that it is practically decided to exempt him also and allow him to pursue his studies, replace the senior student in the hospitals, and eventually, if war lasts long enough, to become a medical officer. But it will be useless to keep him in London, where he would certainly do no work even if any teaching was available. One hospital proposed using junior students as stretcher-bearers, but far less valuable material can be used, and exemption should mean that they seriously pursued their studies. A constantly bombed town is no place for them. They should be transferred at once to medical schools at a distance: Bristol, Cardiff, Liverpool, and the great medical centres of the North. Arrangements to do this should be made now. Perhaps each medical centre might agree to take all the students of one hospital, so that they could keep together and the deans could keep in touch with them. Whatever steps are deemed necessary should be taken *now*, and it is for the deans to move; no Government official is going to make suggestions to them.

What Sir Frederick Menzies states about ambulances and first-aid posts is equally true. The ambulance service was quite inadequate, and no stretchers were available. The ambulance service can be supplemented to start with by private cars, which can deal with sitting cases, the few ambulances being reserved for the lying-down cases. Most hospitals had collected the names of those willing to help with cars, and any hospitals which have not done so should do so at once. Many drivers were ladies. To be really prepared each driver should be asked to drive once or twice at night with lights dimmed and wearing a gas mask. They will not find this easy.

In organizing first-aid posts these should not be regarded as something apart from the hospital. They are all extremities of the hospital centre, and the most suitable place to have the largest and most important first-aid post is the hospital itself, to which the inhabitants are already in the habit of going for medical aid. What the hospital should avoid is the admission to its doors and corridors of the slightly wounded walking case who is brought in by a friend or neighbour, who must, of course, come in with him. They do more to get in the way and upset organization than anything I know. A school or large garage close to the hospital and joined by a covered way, even if it is only canvas, is the ideal, and the whole casualty department of the hospital should if possible be transferred to it, and the hospital buildings reserved for the more severely wounded cases. This is near enough to allow cases requiring further operation to be transferred to the hospital without an ambulance. So many organizations are making the mistake of setting up these centres just a little way from the hospital, under the impression they are helping. They actually double the work, as the hospital must have a casualty department. It can be largely run by the neighbouring practitioners, the St. John Ambulance, and Red Cross; the hospital staff attending to the more serious cases.—I am, etc.,

London, W.1, Oct. 31. DUNCAN C. L. FITZWILLIAMS.

Air Raid Precautions

SIR,—It would appear to me to be extremely unhealthy and wasteful if the plans for our safety in war time are completely divorced from the necessities of peace. In rehousing our people where tenements are necessary in large cities it can surely be arranged that the basement is half underground and therefore easily sand-bagged; it could be used during the busy time of the day as a garage for cars and after school hours and during the week-end as a playground for children on wet days, with a warden in charge of the basement to issue to our somewhat unruly children bats and balls according to the games which are locally encouraged in such spaces. A small space under a large tenement could be so constructed that it could easily be converted into a first-aid post or decontamination centre in war time. It has been considered wise to issue gas masks in certain areas; we have yet to hear the price we must pay for the renewal of this life-saving apparatus.

In peace time we have an enormous number of road smashes, and injured people remain for quite a long time on the roadside until the ambulance arrives without first-aid dressings. Could not every motor-car be compelled to carry two "field" and two "shell" dressings as part of their essential equipment. These "field" and "shell" dressings should be so stitched that they can be opened out to cover twice the area, and should be identical with those issued to the troops in order that everyone is familiar with the size and use. The storage of such dressings would then become part and parcel of civil life, easily turned to advantage during war time, the present dressings in first-aid boxes in factories being useless for road accidents or air raid casualties.

We are inclined to scoff at the Government departments, but if an intelligent observer were posted at the entrance of a large hospital for one week he would be astonished at the various shapes and sizes of stretchers which bring in the sick from the ambulances supplied by the police, contributory schemes, corporations, and private firms. How can waste be avoided if in peace time stretchers do not conform to a standard pattern, duplicates of which should be stored in racks in the main casualty departments, so avoiding unnecessary delay while police, etc., wait for stretchers to be cleared, and again in war time affording a tremendous stock of available stretchers? Indeed, every hospital should be required to store a minimum of eight stretchers for every hundred beds. The training also of the various enthusiastic first-aid workers should be more closely linked with the hospitals. Most of these hospitals have rooms, models, etc., for the training of their nurses, which could be used and be better equipped by massing this type of social service, whether it be given by ambulance teams of dock workers, miners, V.A.D.s, A.R.P. personnel, Boy Scouts or Girl Guides—all valuable auxiliaries but requiring better co-ordination and a dash of experience which the hospitals alone can supply.—I am, etc.,

Liverpool, Oct. 24. R. KENNON.

SIR,—May an outsider be allowed to comment upon the recent correspondence in your columns regarding the medical profession and air raid precautions. That the bomber will get through in large numbers, that congested populations are military objectives of the first order, and that the outbreak of war would mean, from the first, many thousands of casualties a day, these are facts admitted even by the most complacent of our politicians. Hospitals and hastily improvised accommodation crowded beyond capacity within a week; doctors and nurses working, themselves unprotected from the ceaseless relays of bombers, on intricate surgical cases—these are but the milder scenes we must anticipate. The Government, which has as yet evolved no proper plans for clearing stations, emergency accommodation, or structural protection for the great hospitals, is laying a most unfair burden upon the medical profession.

In my own comfortable profession, whose members have little responsibility beyond themselves, some apathy and complacency seems inevitable. But doctors should be the first to put forward a demand for a vigorous and extensive policy of protection. More readily than politicians or civil servants, who talk so airily of "half a million casualties in the first week," doctors realize that prevention is better and easier than cure. Air raid shelters are the solution. As a professional historian and a realist I pin my faith, like Hitler, to steel and concrete and paid labour, rather than to our present fantastic blend of gas-drill and voluntary principles. If members of the medical profession joined my college history classes and noticed how every British Government to date has fought its wars in the light of the *last* war, they would be doubly disturbed to see the old story now repeating itself.

I envisage a strict non-party propaganda organization for air raid shelters. It would principally consist of professional men, who possess the grasp of principles, the technical knowledge, the foresight, the freedom from political and commercial ties in sufficient measure to form the spearhead of the attack. If any members of your profession are interested in the idea I should be glad to hear from them.—I am, etc.,

A. G. DICKENS,
Fellow and Tutor in Modern History,
Keble College.

Oxford, Oct. 27.

Prognosis of Anxiety States

SIR,—The comments in your correspondence columns on my paper on prognosis of anxiety states call for some reply. Dr. R. Macdonald Ladell (October 8, p. 763) stresses "the willingness of the patient to contribute to life" as the chief prognostic point. The absence of this is surely what I have referred to as psychopathic personality, allotting it great importance, especially in persistently Grade I cases. On the other hand, many chronic neurotics are capable of constructive work, so that its significance should not be overestimated. I endorse his remarks concerning the difficulty of determining the goodness or badness of the environment without a profound knowledge of the patient's circumstances, and readily admit that I did not possess this knowledge, but it would have been of interest if the presence or absence of gross social evils had shown some consistent effect.

Dr. F. Dillon (October 15, p. 812) reproaches me for having made no attempt to assess the value of treatment. This is a matter of the greatest difficulty, which is enhanced by the chaotic way in which the end-results of treatment are published, and I make no apologies for failing to tackle it. I could not determine accurately how much and what type of treatment each case had received, especially since many had attended other clinics also. Only three had had prolonged analytical treatment: one, a full Freudian analysis; two, shorter ones of about six months' duration. All three persisted in their original grades. It was noticeable that many of the completely recovered cases had only made one or two visits to the out-patient department, and so had evidently received very little treatment. It is therefore obvious that spontaneous recovery may occur.

I must apologize to Dr. T. A. Ross (October 1, p. 721) for having misrepresented the duration of his follow-up, and must thank Dr. A. M. B. Walker (October 29, p. 922) for having drawn attention to a very interesting paper.—I am, etc.,

ARTHUR HARRIS.

London, W.1, Oct. 31.

Catarrhal Jaundice

SIR,—In the *Journal* of August 27 (p. 437) Dr. C. E. Lakin surveys the different forms of jaundice. He describes the two possible types of catarrhal jaundice: (1) catarrhal jaundice proper, caused by a blocking of the common bile duct secondary to an acute gastro-duodenitis; and (2) a subacute liver necrosis. He lays stress on the difficulty in distinguishing between these two forms, and he is right, I think, in being doubtful about the help given by the pre-icteric history. May I be allowed to refer to the Takata-Jezler reaction in the serum; the modification I have described (*C. r. Soc. Biol.*, Paris, 1935, **48**, 534; *Guy's Hosp. Rep.*, 1936, **86**, 166) seems to help in the differential diagnosis of the two forms. I have found that this simple reaction, which consists in a precipitation of the globulin fraction of the serum by a complex mercury salt (formed by mixing sublimate of mercury with sodium carbonate), gives a massive precipitation with the sera of patients suffering from parenchymatous liver disturbances, but is negative, or only slightly positive, in cases of catarrhal (obstructive) jaundice. G. Cozzutti (*Diagn. e Tecnic. di Labor.*, 1936, **7**, No. 15) has had similar results. The number of my own cases (fifteen) is too small to allow of a final conclusion being drawn, but I think it would be worth while for someone who has the facilities to study the results of this test on a larger number of suitable patients.—I am, etc.,

H. UCKO.

London, W.1, Oct. 28.

Adrenaline Treatment of Asthma

SIR,—Dr. Joah Bates raises an important question in his letter (*Journal*, October 29, p. 921) on the adrenaline treatment of asthma. He points out that the employment of adrenaline during a cold in the head is not seldom followed by a very rapid spread of the infection to the lower bronchial tract. This, I believe, only occurs if the adrenaline is applied locally. I have drawn attention to the fact (*Journal*, March 21, 1936, p. 609) that the local application of any remedy containing adrenaline or ephedrine to the nasal mucous membrane, although it produces a very pleasing immediate effect due to the vaso-constriction of the mucous membrane, does ultimate harm because the vasoconstriction is followed by a reaction, when the turgescence becomes greater than ever; and the more frequently the vasoconstrictor effect is produced the more marked is the resulting vasodilatation. This is more striking when a spray containing adrenaline or ephedrine is used for the relief of asthma. The immediate effect is delightful, but the ultimate result from the reactionary vasodilatation of the bronchial area in most cases is disastrous. So bad may the dyspnoea become that neither the injection of a large dose of adrenaline nor any other remedy will afford relief.

I believe that I was the first in England to give adrenaline by injection for asthma, and in the many years since then I have not met with a case in which addiction to adrenaline has resulted when given by injection. Repeated hypodermic injections of adrenaline produce no pleasurable effect beyond the relief of the dyspnoea, and after a time they make the skin so hypersensitive that patients are only too glad to make use of another remedy to avoid the pain of an injection. I had one asthmatic patient who, as the result of repeated operations for the removal of nasal polypi, had required over 60,000 injections of adrenaline, and the only adverse effects these had

upon him were that his skin became so tough and hypersensitive that he needed a specially sharpened hypodermic needle, and his blood pressure became abnormally low. He never needed to increase the dose above 5 minims.—I am, etc.,

London, W.1, Oct. 29. ALEXANDER FRANCIS.

Idiopathic Epilepsy

SIR,—I was much interested in Dr. Robert G. Linton's remarks on idiopathic epilepsy (*Journal*, October 22, p. 837). I have no definite theory, but my own observations have led me to rely on two remedies that I do not know to have been used by others. I have found that apomorphine injected hypodermically in amounts sufficient to cause vomiting invariably stops fits immediately, sometimes even before the needle has been withdrawn. For the prevention of fits I have found hyoscine usually effective in doses of 1/100 grain by the mouth every night. I believe many cases of nocturnal incontinence of urine are due to epilepsy, though not diagnosed as such, and hyoscine is very effective in these cases also.—I am, etc.,

Bristol, Oct. 24. E. BLAKE GARLAND.

Ether Convulsions

SIR,—In the correspondence about late ether convulsions which has appeared in the *Journal* of October 22 none of your correspondents mentions too deep an ether anaesthesia as a cause of this condition.

We know that an excess of carbon dioxide can cause twitchings which are indistinguishable from the onset of late ether convulsions, and Dr. C. L. G. Pratt's letter (p. 864) leads us into a maze of biochemistry to show how this is brought about; yet these convulsive states are hardly ever reported when ether has not been the principal anaesthetic agent. In my own cases the pupil was always widely dilated when convulsions first started, and in each case I was trying to get the utmost relaxation possible in order to facilitate the surgeon's work. Had I added some chloroform to get this extra relaxation I feel that convulsions would not have occurred. I have had no further cases since adopting this rule.

Convulsions are so often reported in patients who are toxic that sepsis has now come to be regarded as a factor which, combined with ether, will favour the onset of convulsions, but it must not be forgotten that an ill patient requires very much less anaesthetic to produce a given depth of anaesthesia than a non-toxic patient, and I venture to predict that when the signs of anaesthesia are properly taught in our medical schools late ether convulsions will very rarely be reported.—I am, etc.,

London, W.1, Oct. 24. J. U. HUMAN.

Modern Decline of Breast-feeding

SIR,—At the risk of pursuing the correspondence on Dr. J. C. Spence's article on the decline of breast-feeding, I feel that Dr. J. Simon's observations on child welfare centres must not be allowed to pass unchallenged. I have worked both in country districts and in a large metropolitan borough, and I happen to be vice-president of the Women's Public Health Officers' Association, which brings me in contact not only with my own health visitors but with women from all parts of the country, and it seems unbelievable that any doctor of standing can hold the views put forward by Dr. Simon. In my experience it is the efforts made at the clinics by teaching and demonstrating breast massage and complete emptying of the breasts which very often re-establish lactation. There are few general practitioners who have the time or the inclination to visit daily the homes of working-class mothers, who are struggling unsuccessfully to feed their infants naturally and from whom fees are seldom forthcoming. Surely child welfare centres working in co-operation with the general practitioners can *only* do good work.—I am, etc.,

Basingstoke, Oct. 8. HILDA M. PRICE HUNT.

SIR,—Many must have felt like myself that Dr. J. C. Spence's article about breast-feeding was much needed. Of course we all believe in breast-feeding, but how often can we secure it? Most writers reiterate what we already know—that it is desirable, etc. Dr. Spence seeks to tell us why modern woman cannot support the offspring she has contrived, often despite herself, to manufacture.

There have been times when I have felt that there is a definite physiological lack in modern women. But it cannot be so. Surely such a far-reaching change could not arise in one generation! No, it must be either (1) the desire *not* to lactate, or (2) the effect of recent factors in environment. I believe both are in operation. How often am I told that bottle-feeding is less trouble (and with the pseudo-educated labouring classes where *any* milk in *any* bottle suffices I believe this may be true—if the child can stand it), or even that breast-feeding is a dirty business! With such women I achieve nothing. But there is also the question, as Dr. Spence says, of wrong atmosphere and wrong advice. And I believe that the nurse must usually be blamed for this. One cannot learn such things from books and lectures. I don't believe a woman can be a good (as opposed to a competent) midwife unless she has had a child of her own.

The modern mother and her baby are not allowed to know each other. They are kept apart, lactation is emotionally discouraged by giving bedpans, etc., before feeding, the baby is expected to have a time clock for a stomach, and must on no account have any human sympathy. Part of this regime is based on a jealous proprietorship. Doesn't every nurse refer to *her* babies? Despite their appalling ignorance of physiology and even of cleanliness, the old "gamps" may possibly have had some abilities the modern nurse does not possess. They at least had had children.—I am, etc.,

October 9. JUVENIS.

Gold Treatment of Rheumatoid Arthritis

SIR,—It was with great interest that I read a letter from Dr. Maurice Newman (*Journal*, August 13, p. 375) regarding gold therapy. I entirely agree with Dr. Newman's report as to both the benefit derived from chrysotherapy and the disappointing results of vaccine in the case of rheumatoid arthritis.

For the past six years I have studied and used chrysotherapy in a series of some four hundred cases, having obtained the first batch of injections from France. In the majority of cases I alternated the injections with one of anahaemin, and the results have been more than satisfactory; in fact, some cases have benefited to a remarkable extent, bedridden patients having again become active members of the community. In not one instance have complications such as gold abscesses, albuminuria, or altered blood conditions arisen, and in some patients who showed a slight skin reaction the benefit derived proved

greater than in those not showing any reaction. I am now using vitamin C in conjunction with the gold injections, and this has proved very beneficial. In those cases showing a low blood count and haemoglobin, parenteral liver injections, I find, will prevent any risk of an agranulocytic state.

As regards vaccines, I did a good deal of work in this direction, but would not continue their use as the results were very disappointing and in no cases did the patients derive benefit.—I am, etc.,

SIDNEY ROSEBERY, M.D., F.R.C.P.Ed.

Sydney, Australia, Sept. 21.

The Occipito-posterior Case

SIR,—Dr. B. E. Meek (*Journal*, October 29, p. 919) must be thanked for insisting that the proper use of obstetric forceps should be taught. They are the only means of producing the power necessary to deliver weakly mothers of children the average weight of which is definitely rising. Within the pelvis the axis of an impacted head with its oedematous scalp cannot be accurately determined by digital examination. The whole hand must go into the vagina. In the old days I always did this. But now, with an instrument that can harmlessly rotate the foetal head, I find I can omit the "whole hand" exploration in the majority of cases and extract after finding the position of the occiput; only if I cannot quickly find it does the whole hand go in. With regard to my second cardinal error, no cervix can fully dilate in a reasonable time below an impacted unadvancing head. So long as it easily admits the blades, can anything but good result from imitating by gentle rhythmic tractions (at three-minute intervals) the absent pains, with a finger-tip upon the stretching rim to estimate the power one may use? I believe that the future obstetrician will find this a cardinal procedure.—I am, etc.,

DAVID PRICE.

Somerset, Oct. 30.

"Science in Advertising"

SIR,—The annotation headed "Science in Advertising" in your issue of October 22 (p. 842) ends thus: "Medical men must view with some alarm the possibility of the profession thus being used in an advertising campaign." Possibility? Surely it is much more than that. The whole country must by now be familiar with drawings of medical men wisely diagnosing the patient's complaint from a wife's anxious description and prescribing the advertiser's product. From ordinary weekly and daily newspapers one can give the following list of goods advertised with "medical" catchwords, diagrams, or semi-scientific statements:

8 *Beverages.*—"Graph showing course of energy consumption during sleep."

6 *Breakfast Foods.*—Calorie value tested "by a leading dietetic laboratory."

2 *Footwear Products.*—"Doctors say walking on [X] rubber heels saves jarring the spine and prevents headaches."

1 *Mattress.*—Gives vitality because it keeps the spine straight during sleep.

1 *Linoleum.*—Whose springiness is "the secret of inexhaustible vitality."

2 *Biscuits.*—To avoid "excess of starch whose assimilation places undue strain on the whole constitution."

3 *Soaps.*—"Dirty hands may carry 27 Germ Diseases say Doctors."

Various Foods.—Wine (to restore nerve fibres); raisins (for iron); cheese (calcium, phosphorus, and milk minerals); jams (to balance the meal: "Appetite fact . . . dieticians say so"); salmon (proteins); and others.

2 *Beauty Products.*—"Three years of research by leading biologists" on a skin vitamin. ". . . A doctor told me X was the discovery of a great Vienna University Professor."

There are many others. Perhaps the nicest was the physician shown advising the housewife to use a certain soap at the kitchen sink since it washed away the fats which bred disease germs. The examples, it will be noted, are mainly household articles and not pharmaceutical products. It seems as if medicine has become the grocer's privilege.

The public must apparently be impressed by vague graphs, anatomical sketches, and rapid references to carbohydrates and vitamins. As a student I wonder if the general practitioner already has patients coming to him complaining of "fagged feeling," "night starvation," "starch heaviness," "cosmetic skin," and other recently created conditions. Such advertising tends to falsify the public's idea of medicine and leads to self-diagnosis. It increases the amount of unnecessary fear over ill-health which already exists. Natural foods must in many cases be discarded for the dearer branded goods.

A good example of the fear technique is a recently advertised beverage: "Heavens! What a sight I look! Is it nerves or lack of sleep?" Below this caption and its appropriate picture is an explanation that the product has been "discovered by an eminent doctor" to restore the body's mineral balance. A classified list of six minerals and eighteen diseases stated to be caused by their deficiency is appended. These vary from eczema to heart disorders.

Apart from general public education on the true aspects of nutrition and health, can anything be done against such advertisements?—I am, etc.,

A. S. PLAYFAIR.

St. Bartholomew's Hospital, E.C.1, Oct. 23.

Universities and Colleges

UNIVERSITY OF OXFORD

The examiners have recommended that the Rolleston memorial prize for 1938 be divided equally between N. V. Polunin, D.Phil., New College, and H. M. Sinclair, B.Sc., B.M., Fellow of Magdalen College.

SOCIETY OF APOTHECARIES OF LONDON

The following candidates have passed in the subjects indicated:

SURGERY.—P. Baker, H. S. A. Corfield, S. K. Das, E. M. E. Decottignies, H. L. Francis, E. K. Gardner, J. M. Hardy, E. S. Nicholson, F. J. C. Smith, M. K. Twist, M. Whitehead.

MEDICINE.—H. S. A. Corfield, D. L. P. De Courcy, P. A. Dixon, J. R. F. E. Jenkins, F. P. S. Malone-Barrett, R. Rowlandson, V. N. Stevenage, M. K. Twist.

FORENSIC MEDICINE.—H. S. A. Corfield, D. L. P. De Courcy, P. A. Dixon, J. R. F. E. Jenkins, F. P. S. Malone-Barrett, R. Rowlandson, V. N. Stevenage, M. K. Twist.

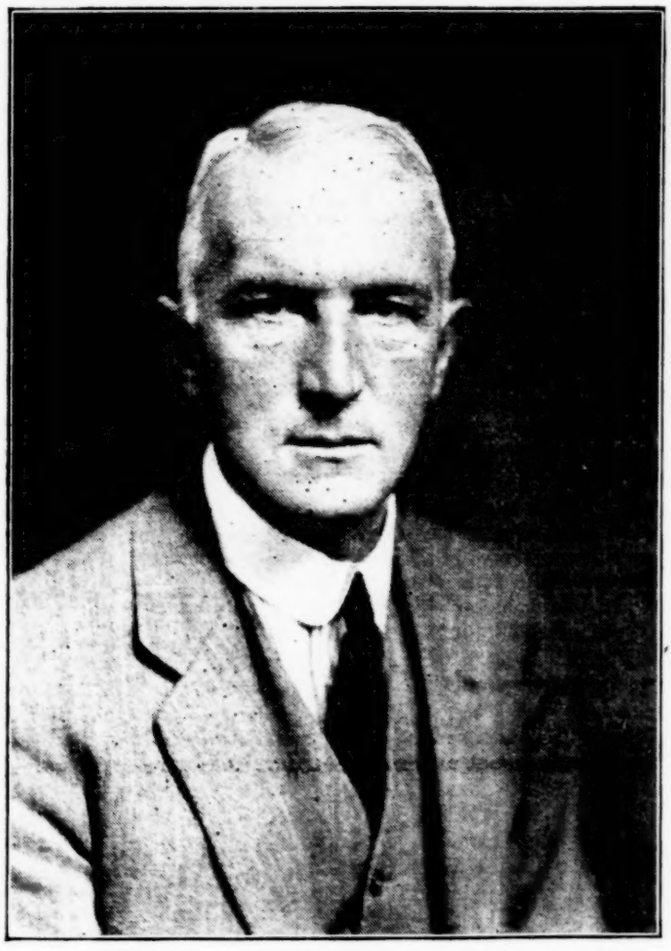
MIDWIFERY.—E. J. S. Barthorpe, W. H. Clarke, P. H. Davies, D. L. P. De Courcy, D. S. G. Genge, K. R. P. Kent, D. B. Roberts, S. A. Schuyler, M. K. Twist.

The diploma of the Society has been granted to P. Baker, H. S. A. Corfield, P. H. Davies, P. A. Dixon, E. K. Gardner, D. S. G. Genge, J. M. Hardy, F. P. S. Malone-Barrett, F. J. C. Smith, and M. K. Twist.

Obituary

SIR R. J. JOHNSTONE, B.A., M.B., F.R.C.S., F.C.O.G., M.P. Northern Ireland

It is with sincerest regret that we record the death at his residence in Newcastle, Co. Down, of Sir Robert Johnstone after a short but trying illness. It seems but a few weeks since his attractive personality presided over the Annual Meeting of the British Medical Association in Belfast in 1937. The charm of his presence on that memorable occasion made for him many new and lasting friendships. Last year he retired from practice to his recently built home in Newcastle, and he was looking forward to following interests in other fields which lay open to his genius, his ability, and his experience.



Robert James Johnstone was born in 1872, a native of Greenisland, Co. Antrim, where his ancestors had been established for many generations. He was a student of the Royal Belfast Academical Institution, and from there entered Queen's College, Belfast, electing to pursue a medical course. In the College his career was distinguished, and eventually he adorned one of the most important chairs of the University, was a member of its Senate and many of its committees, and represented it with ability and eminence in Parliament and on the General Medical Council. In July last the Senate of the University decided to confer on him the degree of LL.D. (honoris causa), but owing to his illness this ceremony did not take place.

At Queen's College he had a brilliant career in the Faculty of Arts, his awards and scholarship being outstanding. In the Faculty of Medicine his progress was again marked by scholarships and exhibitions, leading to his qualification M.B., B.Ch. in the Royal University of Ireland in 1896 with honours. His postgraduate study was thorough. He acted as house-surgeon in the Royal Hospital, Belfast, for a year, and during the next six years was in succession demonstrator of anatomy, and of pathology under Professor Lorrain Smith, completing his studies in London and Vienna. Surgery attracted him, especially gynaecology. He had anatomy at his fingertips, pathology was the background of his knowledge, and a sound judgment coupled with skilful hands completed his equipment for a successful career. In 1900 he obtained his Fellowship of the Royal College of Surgeons of England, and became assistant to the late Sir John Byers, two years later joining the staff of the Royal Victoria Hospital as assistant gynaecologist. At this time, too, he was appointed to the Belfast Maternity Hospital. Robert Johnstone's progress in his chosen field was rapid. The increase in private practice and advancement in hospital appointments were an index of his proficiency and appreciation of his merits. With patients he was the soul of kindliness without being sentimental; their welfare was ever his main concern, to the exclusion of his own interests or convenience. All over Ulster to this day there are grateful recollections of his skill, his sympathy, and his humanity. He was a natural surgeon: deft with his hands; sound in his knowledge of surgery, pathology, and anatomy; perfect in his technique, and critical in his judgment. Not many surgeons could perform major operations with so few instruments, so little ritual, and so little shock to the patient. These qualities marked him out for progressive advancement, which increased the value of his services to the hospitals. In the Royal Victoria Hospital he became senior gynaecologist in 1919, and in the Belfast (later the Royal) Maternity Hospital he manifested a special interest, eventually becoming chairman of its committee of management. The development of the Royal Maternity Hospital from its original situation in Townsend Street was very near his heart, and its welfare one of his main interests; to it he devoted his talents and attracted the best of everything to its service. It is typical of him that one of his last wishes was that anyone intending to send flowers to his funeral should, instead, send a subscription to this hospital. To the Royal Victoria Hospital he gave his professional services as gynaecologist freely and fully, and to its administration he contributed his sound advice and counsel. On the death of Sir John Byers in 1920 Robert Johnstone become professor of gynaecology in the University, and was ever an attractive and interesting lecturer to his students, with all of whom he was singularly popular and respected.

He was a member of the British Medical Association since 1897, being secretary of the Ulster Branch for seven years, president of the Branch in 1921, and eventually attained the highest honour of his career by being President of the Association in 1937. At the 1909 Annual

Meeting in Belfast he was secretary of the Section of Obstetrics and Gynaecology, and was responsible for the arrangement of much of the social programme which made that meeting such a success, and, withal, he found time to edit the *Book of Belfast*. In 1913 he was vice-president of the Section of Obstetrics and Gynaecology. He was a member of the Irish Medical Association and the Irish Medical Committee. Of the latter body he acted as chairman and took an active part in the critical negotiations proceeding with the Local Government Board in Dublin. His name will be remembered by his own generation for the skill with which he guided discussions in momentous affairs and developments in public health matters. His association with the British Medical Association has been a long one, and has ranged over all its activities as member, in secretarial posts, member of Council, and president of the Branch and of the parent association—truly a unique record. He was honoured by the King in the conferring of a knighthood in 1938, during his Presidency of the Association. He was always an interested and active member of the Ulster Medical Society, attending its meetings, reading papers, and taking part in its discussions. He was president in 1922, and in 1937, on his retirement, he was elected an Honorary Fellow of the Society—a rare distinction.

The wider fields of medical affairs attracted Robert Johnstone's early interest, and much that has happened in the development of medical services bears the hall-mark of his judgment and experience. With the establishment of the Northern Ireland Parliament in 1921 the University was fortunate in obtaining in him one of its representatives, and he has ably represented Queen's University in the Ulster House of Commons. The University always found in him a worthy champion, inside and outside of Parliament. Education was one of his interests, and a subject upon which he had sound and definite views. He was one of the most valuable members of the Royal Commission presided over by Sir Robert Lynn, which issued a report upon which the Education Act in Northern Ireland was based. This measure revolutionized primary education in Northern Ireland, and is a lasting testimony to the thought and discernment of its sponsors. Sir Robert Johnstone's services in this field were utilized by his old school in electing him Chairman of its Board of Governors, the highest honour it could confer upon him. Since 1927 he represented the University on the General Medical Council, and since 1934 on the Dental Board. In the former he was genuinely interested, and acted on its executive committee as well as being concerned in the developments and discussions in connexion with the recent modifications of the medical curriculum.

His parliamentary record was further enhanced by his chairmanship of the commission on local government services in Northern Ireland. The report issued in 1927 surveyed the existing system, revealed its limitations, and outlined a comprehensive scheme of reform and modification which will form the basis of discussion in days to come. His contributions to parliamentary debate were only made on those occasions on which he had something of value to contribute. Speaking for the sake of speaking was foreign to his nature, and as a result all his utterances bear the imprint of thoughtfulness and judgment which impressed his hearers. His speeches showed a discrimination which marked him out as one whose usefulness to the State was assured and equal to his attainments in his other fields of activity. One of his last public duties was to preside over a commission of inquiry into the state of maternity services in Northern Ireland, the report of which will unfortunately be posthumous.

He took a prominent part in the inception of the College of Obstetricians and Gynaecologists, and acted on its Council, being a Foundation Fellow; he also held with distinction the presidency of the tenth British Congress of Obstetrics and Gynaecology, which took place in Belfast in 1936.

Rugby football, which he played as a youth at school, found in him a firm and interested supporter; but for many years past golf had been his main recreation. He was a member of the Royal County Down Golf Club, and in its associations he found a field for exercise, for relaxation, and for social contacts which made him one of its most popular and esteemed members. As in everything else, he achieved the highest honour his colleagues could bestow in being elected its captain for two successive years. In Freemasonry, too, he was always interested, and was one of the foundation members of the Queen's University Lodge and its first Worshipful Master.

Thus was his life, full of achievement and well-merited honours. It is typical of his career that in all his manifold activities he attained the highest distinction, not only because he gave to each a brilliant intellect, but because he deserved the best of his colleagues. His approach to any problem was wide and unprejudiced. He was as free as anyone can be from bias and intolerance. His judgment was based not only on extensive knowledge, keen reasoning, and sound argument, but on his profound wisdom in assessing the value of the human element in every problem. He had a keen and lively sense of humour which carried him triumphantly through many a difficult situation and made him an ideal after-dinner speaker. His undoubted greatness lay in the breadth of his outlook, his large humanity, his genius for detached impartial observation, and his great administrative ability. His interests were wide, his observation acute, and his desire for knowledge sincere. With all the honours and popular acclaim which came his way one had only to meet him to realize in him a simple humble spirit. He loved children and flowers and the simple pleasures of life. He never sought the limelight and never looked for personal popularity. Self-seeking and self-interest were alien to his nature, as was the doing of a mean action or speaking ill of a colleague. His inherent modesty seemed to stand in the way of his own personal advancement. He had a genuine natural gift for friendship. He was an equally delightful personality as host, companion, or guest, and he made those with whom he came in contact realize how very attractive a perfectly natural manner can be. Those who met him at the Annual Meeting in 1937 will remember his gift for making all those around him feel at ease and at home. But it was especially at the fireside, at the dining-table, or in the smoke-room of the club that one best realized how unique was this man, so loved by his fellows. In the homes of his friends and colleagues, and in many homes of his patients throughout the land, both humble and palatial, the name of R. J. Johnstone will be held in memory deep and affectionate; all of them grateful and appreciative of his kindness, his sympathy, and his friendship.

In his wife he found an ideal companion in all his interests. Their home life was a singularly happy one, without ostentation or display, but revealing a simplicity and charm which was characteristic of them both.

His wife, whom he married in 1906, was Miss Florence W. Magill, the daughter of the Rev. George Magill, D.D., of Belfast. To her in her sorrow and loneliness the sympathy of the many who knew and loved "R. J." goes out. His life is "unto vaster motions bound, the circuits of his orbit round a higher height, a deeper deep."

Sir Kaye Le Fleming, Chairman of Council, British Medical Association, writes:

Those of us in touch with headquarters at Tavistock Square were not unprepared for the unhappy news of Robert Johnstone's death. The event seems all too soon to see his great services to the B.M.A. in proper perspective. It is hard to realize we can no longer count on his cheerful and practical help in dealing with the intricate problems which arise between Council meetings. No President ever took office better prepared, or more willing, to serve the best interests of the Association. We know too well his bitter disappointment in missing the Plymouth Meeting in July. During his years of office as President-Elect and President he entered whole-heartedly into the responsibilities of his office. He gave to our service a store of vigour and practical wisdom in a manner which endeared him to all. Those who attended the Annual Meeting of 1937 realized how unique a position he held in the affection of his colleagues and the University and City of Belfast. He was the very mainspring of that successful Annual Meeting. Rarely has a President so completely and unconsciously infused a great gathering with his personality and charm. We mourn alike an outstanding figure of our profession, a wise and devoted servant of the Association, and a true friend.

[The photograph is reproduced by permission of Messrs. Halliday of Belfast.]

O. KENTISH WRIGHT, M.B.,

Medical Officer, Ministry of Health

The sudden death on October 25 of Dr. Oswald Kentish Wright will come as a shock to his many friends both in the Ministry of Health and outside. He was born at Nottingham on August 10, 1881, the son of John Kentish Wright, a well-known solicitor in that town. He was educated at Sedbergh School and Christ's College, Cambridge, where he won an open scholarship in mathematics in 1900. He took his B.A. degree in 1903, and in 1904 went to the London Hospital, leaving in 1907, in which year he took the Conjoint qualification of the Royal Colleges. In 1910 he graduated M.B., B.Ch. Cambridge, and obtained the D.P.H. of that University. His first professional appointment was that of resident medical officer at the Newport and Monmouthshire Hospital, where he worked from November, 1907, to April, 1908. He was then appointed assistant and deputy medical officer of health for Nottingham, becoming resident medical officer at the City Isolation Hospital. In 1912 he took up private practice at Holt, Norfolk, and was appointed medical officer to Gresham's School. During the war he held a commission in the R.A.M.C. for nearly five years, and at the conclusion of his military service was confronted with the difficulties of resuming a civilian medical career which will be familiar to many readers. In September, 1919, he was appointed assistant lecturer in hygiene with charge of the bacteriological laboratory at the Household and Social Science Department of King's College for Women, where, besides his teaching duties, he was able to carry out research work in bacteriology. At King's College for Women he won high opinions of his work as a teacher and was very popular with his colleagues and the students in his class.

In December, 1920, Dr. Kentish Wright was appointed to the staff of the Ministry of Health as an assistant bacteriologist, and in January, 1921, took up work at the Government Lymph Establishment, Hendon, but in February, 1922, he was transferred to the Medical Intelligence Department of the Ministry of Health, where he worked until his death, eventually taking over the direction of this branch. His work at the Ministry is perhaps not well known to many outside his Department, but its great value has been appreciated by all his medical colleagues, who are very greatly indebted to him for help which was always thorough and ungrudgingly given. Only those who have worked with him can realize the extraordinary variety of the information which was constantly demanded from him and which was always supplied in full measure and in the shortest possible time. When the Central Council for Health Education was formed Dr. Kentish Wright was appointed as the representative of the Ministry of Health. He took up this work with great enthusiasm and was a most useful member of the Council, serving on a number of its committees, including the exhibitions committee, of which he was chairman.

He was a delightful colleague to work with, modest, shrewd, and gifted with great common sense and an enlightening sense of humour. The Ministry, and indirectly the whole public health service in this country, suffer a heavy loss by his death, and he will always be remembered with affection and respect. He is survived by his wife and one son.

Dr. JOHN ALDINGTON GIBB of Maidstone died on October 11 at the age of 69. He received his medical education at Aberdeen, London, and Dublin, graduating M.B., C.M. Aberdeen in 1895, and proceeding M.D. in 1920. He went to Maidstone about thirty years ago, and specialized in aural surgery, winning wide recognition and popularity for his skill. He was aural surgeon to the Kent Ophthalmic Hospital, Maidstone, and had previously held the appointments of surgical clinical assistant to the Evelina Hospital, and surgeon in charge of the aural clinic of the Ministry of Pensions for Kent. During the war he held the commission of captain R.A.M.C. and served in France as a specialist in ear, nose, and throat conditions. He had previously been house-surgeon at the London Throat Hospital. Dr. Gibb joined the British Medical Association in 1901, was chairman of the Maidstone Division in 1925–6 and 1933–4. He was president of the Kent Branch during 1937–8 until his death. He was also a Fellow of the Royal Society of Medicine and of the Rhinological and Otological Society of Great Britain, and contributed several papers on nasal sinus disease to the *British Medical Journal*. He had served for many years on the Maidstone Town Council, and was vice-chairman of the health committee. In his younger days he was a keen cricketer, had captained the Berkshire C.C., and played for the Incogniti and the Mote. He was also an enthusiastic golfer. He is survived by his wife and four daughters.

Dr. GEORGE WHITFIELD LITTLE died on October 15 when fishing a river in Scotland, a river which he knew well, for he had fished it many times during the last twenty years; he missed his footing, and the heavy current carried him away. He qualified in 1899, and became a Fellow of the Royal College of Surgeons of Ireland in 1907. He was awarded a gold medal in surgery and a prize and medal in medicine and anatomy. At first prosector and demonstrator in the Royal College of Surgeons of Ireland, he became R.M.O. of the Birmingham City Hospital, and (during the South African War) civil surgeon to the Royal Victoria Hospital, Netley. In 1905 he started in general practice at Waterloo, Liverpool. He held the post of medical officer to the Post Office, and during the war served as medical officer to the Moor Lane Camp at Crosby. In 1922 Dr. Little developed some impairment of vision and retired from practice; this improved, and he was able to practise again at Ainsdale,

from 1926 to 1936, when he finally retired, returning to Waterloo to live among his many old friends. A very successful practitioner, he had a great aptitude for surgery, performing many operations rarely undertaken by a general practitioner. His cheerful and companionable temperament made him very popular, and, notwithstanding a busy medical life, he made time for recreation, being fond of golf, fishing, bowls, billiards, and latterly the companionship of his horse. He was thus a man of many parts, who refused to allow himself to be engulfed in the mere humdrum of routine existence. He was a member of the Liverpool Medical Institution, a Conservative in politics, a churchman, and a prominent Mason. He leaves a widow, two daughters who hold medical degrees of the University of Liverpool, and a son who is just finishing his student's career for the degree of the University of London, to whom goes out the sympathy of many colleagues and friends.

We regret to announce the death at the age of 65 of Dr. VAUGHAN BATESON on October 23 after an illness of several weeks' duration. Dr. Bateson, who was the son of Mr. Malcolm Bateson, first Town Clerk of Harrogate, studied at the Leeds School of Medicine and at Glasgow University, qualifying in 1897. He acted as house-surgeon in the Glasgow Royal Infirmary and resident medical officer in the Leeds City Fever Hospital, after which he took up an appointment under the Indian Government at Simla. While in India he spent his leave in exploring Tibet, and he also took part in the arrangements for the Tibetan Expedition of the then Colonel Younghusband. In recognition of his Tibetan exploration he was elected a Fellow of the Royal Geographical Society. In 1912 Dr. Bateson began general practice in Bradford, and on the outbreak of war in 1914 he joined the R.A.M.C. and eventually went to Gallipoli, where he landed with one of the early detachments at Suvla Bay. After the evacuation of Gallipoli he was attached to Allenby's army and went through the Mesopotamia and Palestine campaigns. He was severely wounded in Palestine and was mentioned in dispatches. Whilst in the East he became acquainted with Lawrence of Arabia, and in 1919 he resumed his medical practice in Bradford, which he was still carrying on at the time of his death. Dr. Bateson had many other interests in life beyond his medical work. For thirty-five years he was a divisional surgeon in the St. John Ambulance Brigade, and in recognition of his service he was made an Officer of the Venerable Order of the Hospital of St. John of Jerusalem. He was also interested in the National Fire Brigade Union, and was deputy chief surgeon of the National Fire Brigade Association. He became a Freemason in 1906, and at the time of his death he was a Frater of the Societas Rosicruciana in Anglia, and Arch-President in the Garuda Temple of the August Order of Light. An intimate friend of Rudyard Kipling he was an authority on the works of Kipling and was a member of the Kipling Society. In 1920 Dr. Bateson married Miss Ruby Bower, daughter of Dr. Bower of Bedford, and he is survived by his widow and one daughter. At the funeral on October 26 there was a large and representative congregation at St. Stephen's Church. Police officers and Fire Brigade officers acted as bearers, and contingents of St. John Ambulance Brigade, City Police, and firemen, in full uniform, walked at the head of the cortege.

The death of Dr. JEAN DARIER, only a few weeks after that of Raymond Sabouraud, robs the French dermatological world of one more of its outstanding figures. Like Sabouraud, Darier was at one time attached to the Saint-Louis Hospital, where much of his most important work was done. Darier was born in 1856, of Huguenot stock and Swiss nationality. But though he was born in Budapest and went to school in Switzerland he left this country for France at the early age of 15. His medical studies in Paris carried him from one success to another, and he proved a happy combination of the clinician and the laboratory worker. His earlier publications reflected his predilections for histology, and one of his most important works in this field concerned the blood supply of the valves of the heart. His studies of syphilis of the lungs, liver, kidneys, and arteries revealed him as the patiently discriminating histologist, and it was from this angle that he made his most important contributions to dermatology. His *Précis de Dermatologie* was a monumental work in which he incorporated his original observations over thirty years. He was also the chief animator of the *Nouvelle Pratique Dermatologique*, the first volume of which represents his last word on dermatology.

The following well-known foreign medical men have recently died: Professor KARL SUDHOFF, the eminent medical historian, formerly professor of the history of medicine and director of the Institute of the History of Medicine at Leipzig, a prolific writer on medical history, and editor of the *Archiv für die Geschichte der Medizin*, aged 84; Professor C. NAUWERCK, formerly director of the Institute of Pathology and Hygiene at Chemnitz, aged 85; Dr. ERICH PEIFER, emeritus professor of children's diseases at Greifswald; Dr. JONAS COLLIN, surgeon-in-chief of the Commercial Hospital, Copenhagen, and a writer of works on appendicitis, fractures, and industrial accidents; and Dr. F. REGNAULT, editor of the *Revue Moderne de Médecine et de Chirurgie* for the last sixteen years, aged 75.

The Services

MILITARY MEDICINE AND PHARMACY

The series of international congresses of military medicine and pharmacy represent originally an attempt to benefit humanity by probing the difficulties and distresses inflicted by the war of 1914–18 during the subsequent period of reconstruction and repair, the main objective being the humanization of hostilities so far as might be possible, with especial reference to non-combatants. The first congress was held in Brussels in 1921, when twenty countries sent official representatives, the fifth in London in 1929, while the tenth is to be held next spring in Washington from May 7 to 15. Major-General C. R. Reynolds of the United States Army will preside; he has issued an advance welcome to the delegates in which he expresses the hope that "thought and action may be directed in preventing and ameliorating the suffering and disabilities incident to the assembling of large population groups for peaceful purposes or in the unfortunate circumstances of war." Questions to be discussed at the coming congress are: the organization and function of the medical services in colonial expeditions; methods of calculation of the probable casualties in war; practical procedures for anaesthesia and analgesia in war surgery; the organization and function of the military chemico-pharmaceutical service; emergency treatment and primary apparatus for fractures of the jaws in war; the technical specialization of administrative officers in the medical service; and the practical use of oxygen therapy with troops on active service. A detailed programme in English has been issued and may be obtained from Colonel Voncken, Office International de Documentation, Liége, Belgium; it contains numerous illustrations of Washington and its environs. The *Proceedings* of the sixth session of the International Office of Registration of Military Medicine, held in Geneva in 1936, has now been published in French and English. It contains reports by thirteen medical officers attached to the health offices of ten nations, and the various aspects of the work of military bodies in respect of the maintenance of health are dealt with in detail, thus affording a clear picture of the way in which the various problems are approached in different countries. The physiology of aviation is considered also, and the importance of paying more attention to psychiatry is emphasized.

Medical Notes in Parliament

Both Houses of Parliament reassembled on November 1 to close the Session. Mr. Chamberlain announced that on November 2 the Government would put forward a proposal for implementing the Anglo-Italian Agreement, on November 3 air raid precautions would be debated, and on November 4 Parliament would be prorogued. A new Session would be opened by the King on November 8.

Mr. Chamberlain further announced on November 1 that Sir John Anderson would act as Minister for Civilian Defence and would also be responsible, in consultation with the departments concerned, for determining the arrangements for national voluntary service.

An Order in Council was presented to Parliament on November 1 approving amendments of the regulations of the Dental Board of the United Kingdom.

The Social Services.—On November 1 Mr. ELLIOT, replying to Mr. H. Morrison, said he could give an assurance that he was not contemplating any reduction in the social services. So far from thinking of cutting these services the Government hoped to maintain and if possible expand them.

Miners' Nystagmus.—On November 1 Miss WARD asked the Secretary for Mines whether he could announce any beneficial result from the conversations between his department and the Home Office on the subject of miners' nystagmus. Captain CROOKSHANK said he assumed that this question arose on the report of the Departmental Committee which dealt mainly with questions arising under the Workmen's Compensation Acts. That committee also made recommendations for the improvement of mine lighting which directly concerned his department. This subject had been further dealt with in a circular letter to the coal-mining industry sent out on September 30.

Medical News

The St. Bartholomew's Hospital old students' annual dinner will be held in the College Hall, Charterhouse Square, on Monday, November 21, at 7.30 for 8 p.m., with Mr. Harold Wilson, F.R.C.S., in the chair. The Duke of Gloucester, president of the hospital, has signified his intention of being present.

The annual dinner of the Edinburgh University Club of Birmingham and district will be held at the Midland Hotel, Birmingham, on Friday, November 18, under the presidency of Professor W. Gemmill; the guest of the evening will be Sir John Anderson. The club is open to all male graduates of the University of Edinburgh, and further information may be obtained from the hon. secretary, Dr. Ernest Bulmer, 87, Cornwall Street, Birmingham, 3.

The annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel, W., on Friday, November 18, at 7.30 p.m., under the chairmanship of the president, Dr. E. H. T. Nash.

The annual dinner of the past and present men students of the Leeds School of Medicine will be held at the Great Northern Hotel, Leeds, on Thursday, November 24, at 7 for 7.30 p.m., when Dr. J. P. Bibby will preside. The guest of honour will be Mr. Hugh Lett, F.R.C.S.

At a meeting of the Paddington Medical Society on Tuesday, November 8, at 9 p.m., at the Great Western Hotel, Paddington, W., a lecture on "The Pioneer Health Centre, Peckham," will be given by Dr. G. Scott Williamson. All practitioners are invited to attend.

The Institute of British Surgical Technicians announces a lecture to be given by Mr. Terence Millin on "Bladder Surgery," illustrated by a coloured film, at the Welbeck Hotel, Welbeck Street, W.1, on Friday, November 18, at 8.15 p.m. Tickets will be issued free to members of the medical profession on application to the secretary, 6, Holborn Viaduct, E.C.1.

At a meeting of the Hunterian Society in Apothecaries' Hall, E.C.4, on Monday, November 7, at 9 p.m., a debate on the proposition "That psychological treatment of the criminal is preferable to punishment of the crime" will be opened by Mr. St. John Hutchinson, K.C., Dr. H. Yellowlees, Mr. Albert Lieck, and Sir Holman Gregory, K.C.

A clinical meeting of the Society of Radiotherapists of Great Britain and Ireland will be held at 11, Chandos Street, W., on Friday, November 18, when there will be short papers on "How you would treat a case of (1) Typical lymphatic leukaemia with enlarged superficial glands; (2) Carcinoma of the tonsil involving the anterior pillar of the fauces and spreading into the tongue; (3) Rodent ulcer involving the inner canthus of the eye; and (4) Plantar verruca."

An address entitled "The Development of Aristotle's Thought" will be given before the British Institute of Philosophy by Sir W. David Ross, K.B.E., on Tuesday, November 15, at 8.15 p.m., at University College, Gower Street, W.C. Cards of admission can be obtained from the Director of Studies at University Hall, 14, Gordon Square, W.C.1.

A meeting of the Metropolitan Branch of the Society of Medical Officers of Health will be held at 1, Thornhaugh Street, W.C., on Friday, November 11, at 4 p.m., when there will be a discussion on the responsibilities of metropolitan medical officers of health with regard to first-aid arrangements in connexion with air raid precautions.

The following meetings of the Tuberculosis Association will be held at 26, Portland Place, W., on Friday, November 18: 4 p.m., council meeting; 5.10 p.m., general meeting and presidential address by Dr. G. T. Hebert, "Fibrosis of the Lungs"; 8.10 p.m., paper by Dr. W. Burton Wood, "Epituberculosis."

In order to create more interest in child guidance among members and officers of education committees, medical officers of health, school medical officers, and others, the Royal Sanitary Institute has arranged a conference on child guidance at 90, Buckingham Palace Road, S.W., on Thursday, November 17, at 2.30 p.m. The chair will be taken by Sir Henry Brackenbury, and a discussion on "What can Local Authorities do for the Maladjusted Child?" will be opened by Dr. C. L. C. Burns.

The Lord President of the Council has released Professor R. H. Fowler, F.R.S., at his own request, for reasons of health, from the engagement to assume the Directorship of the National Physical Laboratory on October 1, in succession to Dr. W. L. Bragg. To the vacancy thus created the Lord President has appointed Dr. C. G. Darwin, F.R.S., Master of Christ's College, Cambridge. For the period until Dr. Darwin can assume his duties the office of Director will be held by Sir Frank Smith, F.R.S., secretary of the Department of Scientific and Industrial Research. Correspondence should be addressed as hitherto to the Director, National Physical Laboratory, Teddington, Middlesex.

A committee of Professor Pautrier's colleagues, friends, and pupils has arranged for a medal to be struck in honour of the twentieth year of his appointment to Strasbourg. It will be presented to him at the special meeting of the Dermatological Reunion in that city on May 14, 1939. Subscriptions are invited for minimum donations of 100 francs; they should be sent to Dr. F. Woringer, the Dermatological Clinic, Strasbourg.

We have received the first number of the first volume of the German *Journal of Diseases of Metabolism and of Digestion*, under the editorship of Dr. Max Bürger and Dr. Werner Catel, which is being published by J. A. Barth of Leipzig. Six numbers will be published a year at a half-yearly subscription of RM. 15.

The October issue of the *Annales de Médecine* is devoted to septicaemia due to various organisms (*B. fundibuliformes, B. fragilis, Streptobacillus moniliformes, Streptococcus haemolyticus, B. coli,* and *C. diphtheriae*).

The King has approved the reappointment of Dr. Adam Rankine, *M.C.*, to be a Nominated Official Member and Dr. Arthur Hutton McShine, O.B.E., to be a Nominated Unofficial Member of the Legislative Council of the Colony of Trinidad and Tobago.

The King has appointed Dr. James White Thomson (Senior Medical Officer) to be a Member of the Executive Council of the Presidency of Saint Christopher and Nevis.

The King has granted authority for Dr. George Herbert Garlick (Principal Medical Officer, Johore) to wear the Order of the Crown of Johore, insignia of the Second Class, conferred upon him by the Sultan of Johore in recognition of valuable services rendered.

Dame Joanna Margaret Cruickshank has recently been appointed Matron-in-Chief of the British Red Cross Society in place of the late Mrs. Rome.

The international Chauvin prize for oto-neurophthalmology has been awarded to Drs. Alfandary of Belgrade, Arslan of Padua, and Chardonnel of Nantes. The subject of the prize was a plan for the study of vestibular disharmony.

EPIDEMIOLOGICAL NOTES*

Acute Poliomyelitis

The progressive rise in the incidence of acute poliomyelitis noted in the last three weeks is continued in the week under review; in the present instance the rise is entirely due to the increase in the cases in London. Of the 81 (77) cases notified in England and Wales 7 (11) occurred in Essex, 6 each in Nottingham (0), Glamorgan (2), Oxfordshire (12); and 4 each in Carmarthen (4), Sussex (6), and the West Riding of Yorkshire (2). More than one case was reported from the following centres: London 11 (4)—Camberwell, Lewisham, and Wandsworth 2 each; Battersea, Hammersmith, Holborn, Islington, and Poplar 1 each—4 each in Harwich (7), Eastwood (0), Oxford (11), Bristol (2); 3 in Penarth (0); 2 each in Tendring (3), Sedgley (0), Horsham (0), Birmingham (1), Sheffield (1), Carmarthen (0), and Swansea (0). The wide distribution and sporadic character of the disease are illustrated by experience in Mid-Sussex, where there were 19 cases with 2 deaths in the last three months, compared with 5 cases for the whole of 1937. The cases occurred largely in isolated dwellings, chiefly farmhouses, in the rural areas. An unusual feature in this outbreak is the age of the incidence of the disease, the majority of the cases being between 10 and 16 years, which is considerably above the age limit.

In Germany during the week ended October 8, 353 (337) cases were reported, chiefly in Bavaria 67 (54), Württemberg 60 (54), Baden 16 (12). In Rhenish Prussia the incidence of the disease decreased. In Denmark during the month of September 92 cases were reported, compared with 61 in the previous month. During the week ended October 15, 33 cases were reported in Holland, including 10 in the province of South Holland and 9 in the province of North Holland.

Enteric Fever

There was a slight increase in the incidence of enteric fever in England and Wales—37 (32)—in which London shared—12 (11). The counties from which more than one case was reported are: Middlesex 3 (Heston and Isleworth, Ruislip-Northwood, Sunbury-on-Thames), Durham 2 (Sunderland and Boldon), Kent 2 (Canterbury and Folkestone), Lancashire 2 (Eccles and Farnworth), Surrey 2 (Barnes and Esher), Sussex 2 (Uckfield and Horsham). The 12 cases in London occurred in Chelsea, Fulham, Kensington, and Wandsworth 2 each, Greenwich, St. Marylebone, St. Pancras, Westminster. At the time of going to press an outbreak of typhoid fever involving 5 children has been reported at Wellow, near Eastleigh, Hampshire. The schools at Wellow (population 1,700) have been closed for a period of three weeks.

Primary and Influenzal Pneumonia

There was a further increase in the notifications of primary and influenzal pneumonia in England and Wales—534 (483)—and in London—45 (38)—during the week under review. The counties with the greatest increases are: Lancashire 106 (92), Leicester 11 (4), Norfolk 12 (5), Stafford 37 (24), Warwickshire 48 (38), Glamorgan 17 (9). The number of deaths in the 126 Great Towns rose from 12 to 26: more than one death occurred in Manchester 3 (1), Leeds 2 (0), and Liverpool 2 (0).

Diphtheria and Scarlet Fever

The rise in the notifications of diphtheria in England and Wales and in London referred to last week was continued during the week under review—1,367 (1,288) and 173 (138) respectively. The centres chiefly affected were: Derby 17 (9), West Ham 13 (3), Bristol 20 (8), Leicester 23 (17), Bethnal Green 19 (5), Camberwell 15 (9), Lambeth 14 (9), Lewisham 13 (7), Hendon 13 (3), Smethwick 16 (0), Croydon 18 (12), Leeds 31 (28). In Scotland, also, an increase was recorded, notably in Aberdeen 18 (13), Glasgow 78 (72), Edinburgh 14 (12), Fife County 12 (6), Stirling County 7 (3). Of the 17 deaths in the 126 Great Towns of England and Wales more than one occurred only at Croydon, 2 (0). There were 4 deaths from diphtheria in the 16 principal towns of Scotland during the week—2 (2) in Glasgow and 1 each in Aberdeen (0) and Paisley (1).

Notifications of scarlet fever in England and Wales and in London dropped during the week under review—1,864 (1,942) and 159 (186) respectively—and were well below the median values for the last nine years. There were 4 deaths in the 126 Great Towns: in Worcester 2, and 1 each in Oxford and Dewsbury. In Scotland the notifications rose from 355 to 395; the centres chiefly affected were: Glasgow 88 (71), Dundee 32 (21), Fife County 38 (32), Greenock 19 (13), Aberdeen 12 (10). There were no deaths from scarlet fever in the 16 principal towns of Scotland during the week.

Measles and Whooping-cough

There were only 2 deaths from measles (both in Merthyr Tydfil) in the 126 Great Towns of England and Wales during the week under review. Of the 26 (26) cases of measles notified in the administrative county of London the chief were in Finsbury 5; Deptford and Poplar 3 each; Lambeth, Shoreditch, Stepney, and Woolwich 2 each. In Scotland 18 cases of measles were notified during the week, compared with 8 in the previous week; the centres chiefly affected were: Glasgow 9 (3) and Orkney County 4 (0). Of the 4 deaths from whooping-cough recorded in the 126 Great Towns of England and Wales during the week 1 each occurred in Birmingham (1), Leicester (0), Kingston-upon-Hull (0), London (0). In London 131 (70) cases of whooping-cough were notified, distributed mainly as follows: Hackney 21, Southwark and Wandsworth 14 each, Lambeth 10, Stepney 9. In Scotland the notifications rose from 91 to 163 during the week, chiefly in: Glasgow 134 (66), Lanark County 12 (6). There were 4 (0) deaths (all in Glasgow).

Cholera: Plague

During the week under review there were 862 (1,455) cases of cholera and 433 (702) deaths in the Central Provinces of India, 330 (381) cases and 141 (161) deaths in Bombay Presidency, 223 (361) cases and 104 (161) deaths in the United Provinces. In China during the same week 87 (82) cases and 30 (24) deaths were reported in Shanghai and 7 (16) cases and 9 (7) deaths in Hong Kong.

In India during the week there were 73 (144) cases of plague and 5 (18) deaths in the Central Provinces, 88 (33) cases and 73 (26) deaths in Burma, 25 (30) cases and 11 (12) deaths in Madras Presidency, and 13 (13) cases and 8 (4) deaths in Bombay Presidency.

* Except where otherwise mentioned, figures in parentheses refer to the week preceding the one under review.

No. 42

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 22, 1938.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for : (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland. Median values for the last 9 years for (a) and (b).

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for : (a) The 126 great towns (124 in 1937) in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases ; a blank space denotes disease not notifiable or no return available.

Disease	1938					1937 (Corresponding Week)					1929-37 (Median Value Corresponding Weeks)	
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)	(a)	(b)
Cerebrospinal fever	19	5	3	—	—	17	5	5	1	2		
Deaths		—	—				—	2				
Diphtheria	1,367	173	233	60	20	1,706	246	280	48	37	1,310	246
Deaths	17	2	4	—	—	33	6	4	2	—		
Dysentery	35	10	16		1	69	30	25		—		
Deaths				—	—				—	—		
Encephalitis lethargica, acute	3	—	—		—	5	—	—		—		
Deaths		1					1					
Enteric (typhoid and paratyphoid) fever	37	12	4	3	3	36	9	12	7	4	43	
Deaths	1	1	—	—	—	2	1	—	—	—		
Erysipelas			82	3	6			84	6	5		
Deaths		—					—					
Infective enteritis or diarrhoea under 2 years												
Deaths	51	8	11	7	1	54	9	16	11	5		
Measles		26	18		3			88		9		
Deaths	2	—	—	—	—	6	—	2	—	—		
Ophthalmia neonatorum	97	9	38		—	92	7	27		—		
Deaths												
Pneumonia, influenzal†	534	45	6	5	2	734	71	7	2	7	735	70
Deaths (from Influenza)	26	1	3	1	—	32	9	6	—	2		
Pneumonia, primary			233	6				223	6			
Deaths		14		8	6		17		7	11		
Polio-encephalitis, acute	7	—				3	1					
Deaths		—					—					
Poliomyelitis, acute	81	11	4	2	1	27	3	1	—	1		
Deaths		2					—					
Puerperal fever	2*	2	24	1	—	5*	5	12	2	1		
Deaths		—					—					
Puerperal pyrexia	157	13	16		—	186	13	35		2		
Deaths												
Relapsing fever	—	—			—	—	—	—		—		
Deaths												
Scarlet fever	1,864	159	395	43	92	2,705	221	554	100	94	2,709	382
Deaths	4	—	—	1	—	2	—	1	—	—		
Small-pox	—	—	—		—	—	—	—		—		
Deaths	—	—		—	—	—	—		—	—		
Typhus fever	—	—	—	—	—	—	—	—	—	—		
Deaths				—	—				—	—		
Whooping-cough		131	163		4			36		4		
Deaths	4	1	4	—	1	8	—	2	—	—		
Deaths (0-1 year)	265	41	64	21	18	334	46	76	30	16		
Infant mortality rate (per 1,000 live births)	44	34				56	38					
Deaths (excluding stillbirths)	4,086	764	566	154	124	4,319	879	572	155	130		
Annual death rate (per 1,000 persons living)	10.0	9.7	11.5	10.4	11.0	10.7	11.1	11.7	10.6	11.5		
Live births	6,663	1,266	864	305	227	5,984	1,120	853	270	211		
Annual rate per 1,000 persons living	16.4	16.1	17.6	20.7	20.1	14.8	14.1	17.4	18.4	18.7		
Stillbirths	255	40				248	30					
Rate per 1,000 total births (including stillborn)	37	31				40	26					

* After October 1, 1937, puerperal fever was made notifiable only in the administrative county of London.

† Includes primary form in figures for England and Wales, London (administrative county), and Northern Ireland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

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QUERIES AND ANSWERS

Varicose Veins in a Haemophiliac

Dr. H. E. CARMALT (Birmingham) writes: A haemophiliac patient of mine has varicose veins and is rather anxious lest one of them should rupture. I did not advise injection of a sclerosing fluid as I think the usual clotting within the vein would not take place and there would be a troublesome haemorrhage from the site of puncture. I would be grateful for any authoritative opinion.

Ménière's Disease and Fruit Diet

Dr. V. E. HASTINGS writes from Auckland, New Zealand: Dr. James Adam says in his letter (*Journal*, April 16, p. 870): "The last two cases of Ménière's disease that I saw promptly got well on taking abundant fruit." This is in agreement with my own experience of two cases of Ménière's disease. These two patients were given diets which contained in one case a pound of fruit daily and in the other two pounds daily. Both had one and a half to two pints of milk, four ounces of raw greens, with the rest of the diet made up of potatoes, vegetables, meat, wholemeal bread, and butter. They both made rapid recoveries, in one case all giddiness disappearing in from two to three days, and in neither case has there been a return of symptoms after two and three years respectively. It would be interesting to hear what results others get from this treatment.

LETTERS, NOTES, ETC.

Sterilization of Syringes

Dr. TREVOR H. KNIGHTS (Belgian Congo) writes: I would like to add a word of support for the water-alcohol-ether sequence for the sterilization of syringes advocated by several correspondents. I used this method for three years as an assistant in a bacteriological laboratory. Syringes were sterilized in this way before drawing off blood for culture, the blood being immediately squirted into a flask of 2 per cent. glucose broth at the bedside. I have no definite figures, but in over 200 such procedures I can only remember two plates showing contamination after prolonged incubation. In these blood cultures haemolytic streptococci, *Str. viridans*, and often pneumococci, grew strongly and were uncontaminated—a convincing proof, I always felt, of the efficacy of the method. I have, of course, heard the method strongly criticized on theoretical grounds—the short time-interval, the inadequacy of absolute alcohol in any case, etc.—but until more elaborate methods can give as reliable results I shall continue to employ this one. Our technique was simple. Immediately on returning from the ward the person responsible washed the syringe thoroughly with water; tap water will do and does not need to be boiled, but all the protein matter must be removed. Any stickiness was dealt with by peroxide, or failing that 1 per cent. sodium bicarbonate, although the alkaline solution is to be avoided if possible. Then the syringe was rinsed with absolute alcohol, and finally ether, and left—the plunger separated from the barrel—on the top shelf of a bacteriological incubator or any warm, dry, dustless cupboard. When it was required for use the plunger was fitted into the barrel, and the syringe was rinsed first with absolute alcohol and then with ether. We sterilized the needles by placing them in a test-tube plugged with cotton-wool and containing 2 or 3 c.cm. of alcohol. The spirit was boiled off on a water-bath or more rapidly by heating the tube over the naked flame of a bunsen burner or spirit lamp. This gave a sterile, dry needle; there was no danger if the vapour issuing from the tube was ignited. In practice the alcohol–ether rinsing would do equally well for the needles. Also of value is the method I learnt for "unsticking" syringes by placing them on a block of ice for ten to fifteen minutes. I have never known this to fail, but it need never be necessary if the first careful washing with water is properly performed as soon as possible after the syringe has been used.

Dr. J. WALKER TOMB writes: In his letter to the *Journal* of August 6 (p. 317) Dr. E. W. Hayward asks for suggestions regarding a feasible method of sterilizing hypodermic syringes where repeated boiling is impracticable. If Dr. Hayward will refer to the *Indian Medical Gazette* of January 1, 1925, he will find such a method described by me under the heading "A Useful Hypodermic Outfit." The essential part of the method is that the syringe, having been sterilized originally by boiling, is thereafter maintained in a sterile condition by washing it out after each injection with a mixture of equal parts of rectified spirit and glycerin of carbolic acid. The rectified spirit evaporates quickly, more especially in the Tropics, leaving a very fine film of glycerin of carbolic acid behind, which not only keeps the interior of the barrel perfectly sterile, but effectively prevents the piston from sticking in the barrel. The needle described in the article is a platino-iridium one, and is sterilized in the first instance by boiling, and by flaming before and after subsequent use, but any modern high-grade stainless steel needle can be sterilized by flaming for a considerable number of times before losing its edge. Hundreds of injections have been given over many years with a syringe sterilized in this way without a single untoward reaction. The syringe has also been tested periodically in the laboratory for sterility and always found sterile.

Gas and Air Analgesia

The National Birthday Trust Fund for Extension of Midwifery Services announces an offer to all district nursing associations employing nurses who have qualified to give analgesia by the gas and air method of an approved machine at the greatly reduced price of £5. This low cost will make it possible for all associations to obtain one. Applications should be addressed to the Secretary, National Birthday Trust Fund, 57, Lower Belgrave Street, S.W.1. Gas cylinders to fit the machine are supplied by a well-known firm, which undertakes to deliver and collect the cylinders at any address for 3s. 2d. per cylinder. Unused ones are credited, and the average cost of gas per case has been found to work out at about 4s. 6d.

Disclaimer

Dr. WILLIAM BROWN (London, W.1) writes: My attention has been drawn to a recent article in a Sunday paper in which a photograph of myself appears, and also the description of a case as being treated by me which was not a case of mine but a case of the late Dr. Georg Groddeck of Baden Baden which I had briefly described in my last book. The article was written and published without my knowledge or consent, and the writer of the article is personally unknown to me. The photograph was one of myself ten years ago, and I do not know how it was obtained for the newspaper.

Corrigendum

In our report of the discussion on "Marine Therapeutics" (October 29), Dr. S. Watson Smith was misquoted at one point. The first sentence of the third paragraph on page 910 should read: "The southern region was to be recommended all the year round in the neuroses, insomnia, thyrotoxicosis, high blood pressure, granular kidney, and chronic respiratory disease, *excluding* tuberculosis."